



Nakamichi

Service Manual

Nakamichi

TA-3

TA-3A

TA-3E

TA-30

High Definition Tuner Amplifier



CONTENTS

1. General	1
2. Removal Procedures	3
2. 1. Top Cover Ass'y and Bottom Cover Ass'y	3
2. 2. Front Panel	3
2. 3. Power Switch P.C.B. Ass'y	3
3. Parts Location for Electrical Adjustment	4
4. Electrical Adjustments	5
4. 1. Power Amplifier Section	5
4. 2. Tuner Section	5
4.2.1. FM Tuner Section	5
4.2.2. AM Tuner Section	7
5. Mechanism Ass'y and Parts List	8
5. 1. Synthesis	8
5. 2. Chassis Ass'y (A01)	9
5. 3. Heat Sink Ass'y (B01)	11
5. 4. Front Chassis Ass'y (B02)	11
6. Mounting Diagrams and Parts List	12
6. 1. AC Outlet P.C.B. Ass'y	12
6. 2. Power Switch P.C.B. Ass'y	12
6. 3. Speaker Terminal P.C.B. Ass'y	12
6. 4. Headphone P.C.B. Ass'y	13
6. 5. Power LED P.C.B. Ass'y	13
6. 6. Volume LED P.C.B. Ass'y	13
6. 7. Subsonic P.C.B. Ass'y	13
6. 8. Phono Input P.C.B. Ass'y	13
6. 9. Record Selector P.C.B. Ass'y	13
6. 10. Loudness P.C.B. Ass'y	13
6. 11. Motor Volume P.C.B. Ass'y	14
6. 12. IF Band Switch P.C.B. Ass'y	14
6. 13. Tone Control P.C.B. Ass'y	14
6. 14. Power Supply P.C.B. Ass'y	15
6. 15. Control Switch & Display P.C.B. Ass'y	16
6. 16. Video P.C.B. Ass'y	17
6. 17. Logic P.C.B. Ass'y	20
6. 18. Main P.C.B. Ass'y	21
7. Schematic Diagrams	23
7. 1. IC Block Diagrams	23
7. 2. Schematic Diagrams	24
7.2.1. Video Section	24
7.2.2. Tuner Section	25
7.2.3. Amplifier Section	26
8. Wiring Diagram	27
9. Block Diagrams	28
9. 1. Tuner Section	28
9. 2. Amplifier Section	29
10. Specifications	30

1. GENERAL

1.1. CAUTIONS/WARNINGS

(1) Product Safety Notice

Parts marked with the symbol  in the schematic diagram have critical characteristics.

Use ONLY replacement parts recommended by the manufacturer.

It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

(2) Leakage Current Check/Resistance Check

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either

side of the power cord is less than 240 k ohms, the unit is defective.

WARNING — DO NOT return the unit to the customer until the problem is located and corrected.

(3) Lithium Battery Caution

Use ONLY replacement parts recommended by the manufacturer. Replacement must be done only by qualified service personnel because of risk for explosion.

VARNING

Litiumbatteri. Explosionsfara vid felaktig hantering. Byte får endast ske av sakkunnig personal enligt servicedokumentationens anvisningar.

ADVARSEL!

Lithiumbatterier. Eksplorationsfare. Udskiftning må kun foretages af en sagkyndig og som beskrevet i servicemanualen. batterierne kun må udskiftes med batterier af samme fabrikat og type.

1.4. Package Ass'y

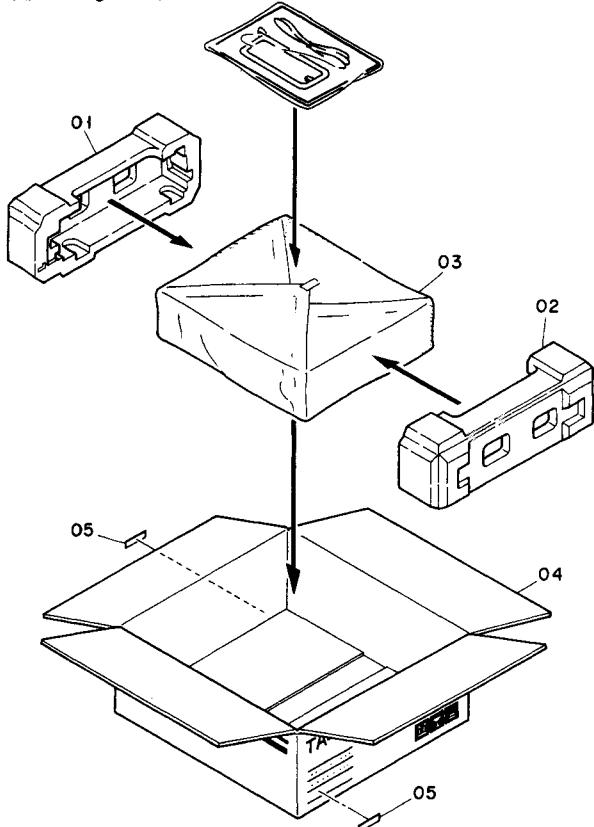


Fig. 1.1

1.2. Destination

TA-3: Other & Australia
TA-3A: U.S.A. & Canada
TA-3E: Europe
TA-30: Japan

1.3. Voltage Selector

Voltage selector is installed on the rear panel for Other version of the TA-3. This voltage selector can select 110, 120, 220, or 240 V at customer's disposal.

1.5. Accessory Ass'y

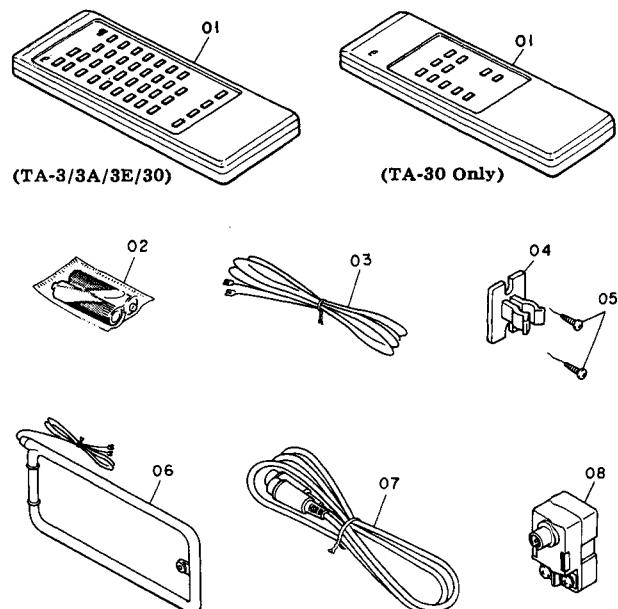


Fig. 1.2

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
		Package Ass'y				Accessory Ass'y	
01	OF04141B	Packing L (TA-3/3E/30)	1	01	DA04196A	Remote Control Unit	1
	OF04195A	Packing L (TA-3A)	1		DA04208A	Remote Control Unit (TA-30)	1
02	OF04042B	Packing R (TA-3/3E/30)	1	02	OB90242A	Battery AA Type x 2 (TA-3/3E)	1
	OF04196A	Packing R (TA-3A)	1		OB90341A	Battery AA Type x 2 (TA-3A)	1
03	OF03670A	Poly Sheet (TA-3/3E/30)	1		OB90276A	Battery UM 3x2 (TA-30)	2
	OF04199A	Soft Sheet (TA-3A)	1	03	OB90320A	Feeder Antenna	1
04	OF04193A	Carton Box (TA-3)	1	04	OB90319A	Loop Antenna Holder	1
	OF04191A	Carton Box (TA-3A)	1	05	OE03496A	Screw 3.1x10 Ø BLK (For Wood)	2
	OF04194A	Carton Box (TA-3E)	1	06	OB90318A	AM Loop Antenna	1
05	OF04192A	Carton Box (TA-30)	1	07	OB83465A	8P DIN Cable	1
	OM05280A	Serial No. Label (TA-3/3E/30)	1	08	OB90194A	Antenna Adapter F (TA-3/3A/30)	1
	OM05247A	Serial No. Label (TA-3A)	2		OB90208A	Antenna Adapter EP (TA-3E)	1
—	OF04218A	Rear Spacer Packing (TA-3/3E/30)	1	—	OD04810A	Important Notice	1
—	OM03457A	Voltage Label 240V (TA-3 (Australia))	2	—	OD04836C	Warranty Card (TA-3A)	1
				—	OD04872D	Owner's Manual (English/German/French)	1
				—	OD04875A	Owner's Manual (Japanese)	1
				—	OD04212A	Poly Bag for Knob (TA-3/3E/30)	1
				—	OD03092B	Poly Bag for Accessory 320x340x0.08 (TA-3/3E/30)	1
				—	OD04903A	Poly Bag for Accessory 6x10 (TA-3A)	1
				—	OD04902A	Poly Bag for Set 22x40 (TA-3A)	1
				—	OJ05916A	Speaker Terminal Bush (TA-3E)	1

2. REMOVAL PROCEDURES

2.1. Top Cover Ass'y and Bottom Cover Ass'y

Refer to Fig. 2.1.

- (1) Loosen screws F01 (5 pcs.) and remove F02 (Top Cover Ass'y).
- (2) Loosen screws F03 (10 pcs.) and remove F04 (Bottom Cover Ass'y).
- (3) Loosen screws F05 (2 pcs.) and remove legs (F06) as required.

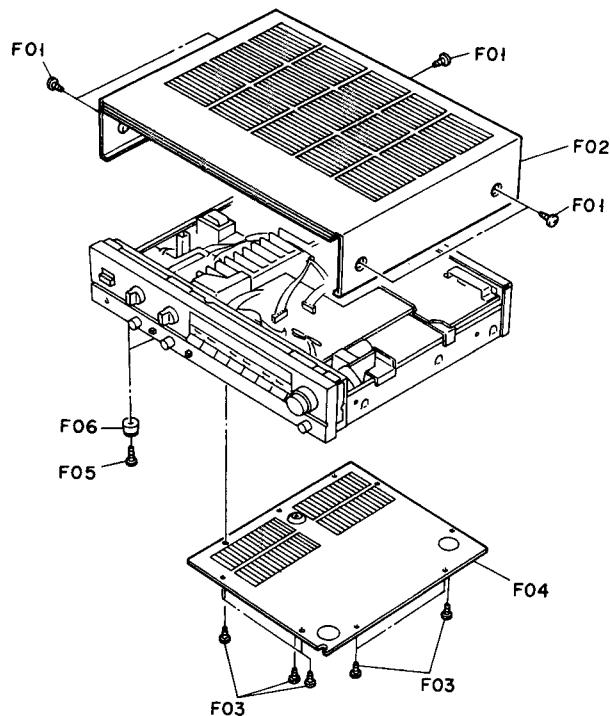


Fig. 2.1

2.2. Front Panel

Refer to Fig. 2.2.

- (1) Remove the Top Cover Ass'y and Bottom Cover Ass'y referring to item 2.1.
- (2) Loosen screws F01 (3 pcs.), F02 (2 pcs.) and F03 (3 pcs.), and remove F04 (Front Panel).

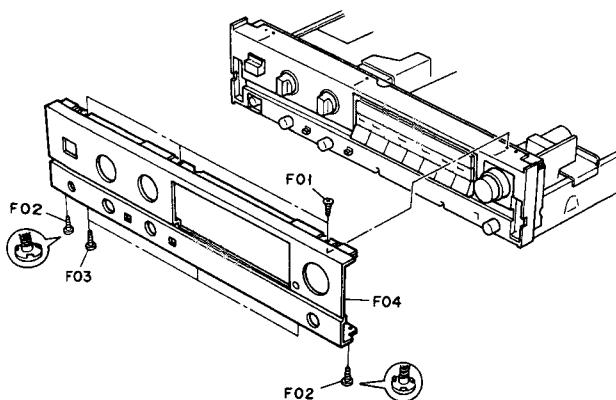


Fig. 2.2

2.3. Power Switch P.C.B. Ass'y

Refer to Figs. 2.3.1 and 2.3.2.

- (1) Remove the Top Cover Ass'y referring to item 2.1.
- (2) Pull out a knob F01, loosen a nut F02, and remove a washer F03.
- (3) Loosen screws F04 (2 pcs.) and remove a button F05. To remove F05, push the Power Switch rearward as shown in Fig. 2.3.2.
- (4) Remove F06 (Power Switch P.C.B. Ass'y).

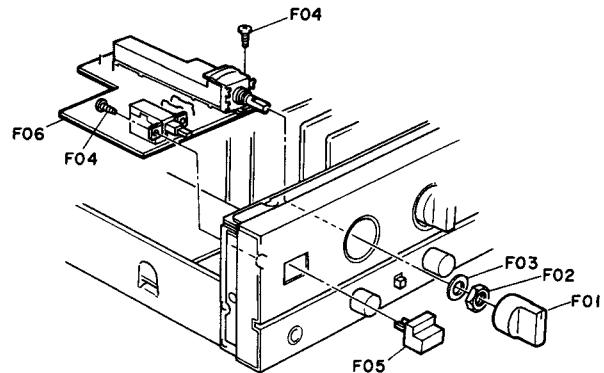


Fig. 2.3.1

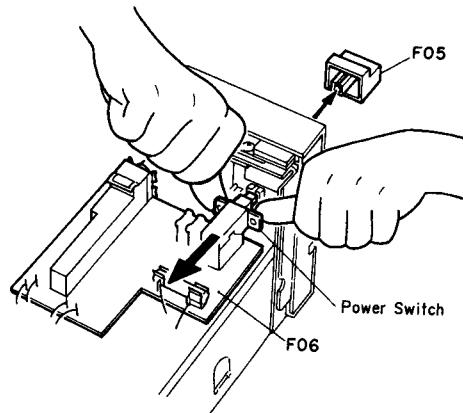


Fig. 2.3.2

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

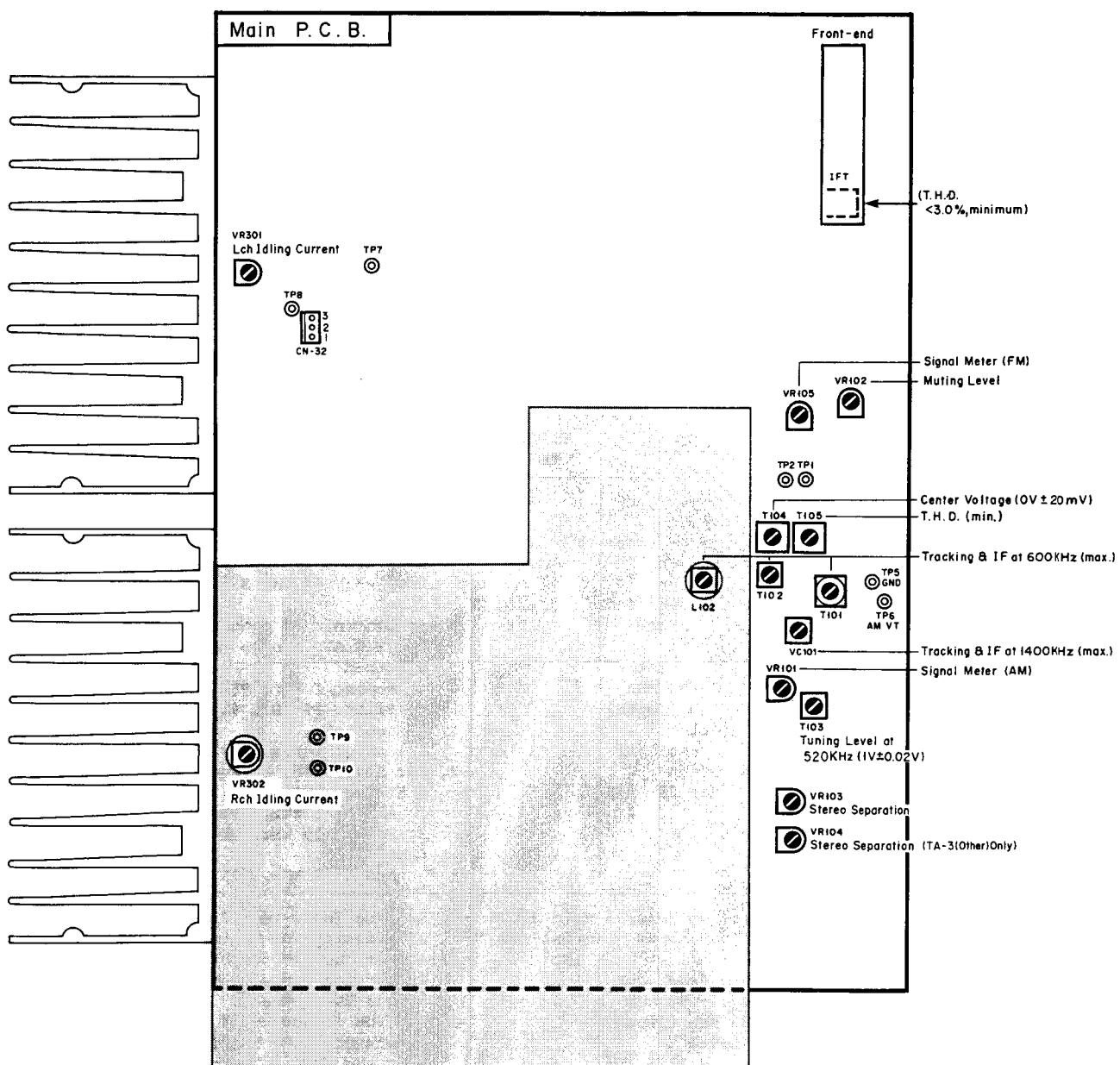


Fig. 3

4. ELECTRICAL ADJUSTMENTS

4.1. Power Amplifier Section

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Idling Current	None	DC Voltmeter between TP7 & 8 (or CN32-2 & 3) and TP7 & CN32-1 on Main P.C.B.	Monitor Selector - CD Output Level - Min. Speaker Selector - OFF	Main P.C.B. VR301 VR302	<ol style="list-style-type: none"> 1. Insert shorting plugs into the CD Player Input Jacks. 2. Turn ON the power and allow 3 minutes before adjustment. (Top Cover must be installed in this period of time.) 3. Adjust VR301 (VR302) to obtain 25 mV \pm 5 mV on the DC voltmeter.

4.2. Tuner Section

Note: Adjustment should be made in a shielded room in principle.

4.2.1. FM Tuner Section

STEP	ITEM	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Preliminary Step	See Fig. 4.1	<p>Tuner Amplifier Monitor Selector - Tuner Band Selector - FM Rec.out Selector - Tuner</p> <p>Signal Generator Freq. - 98 MHz - 83 MHz (Japan)</p> <p>RF Level - 65 dBf</p> <p>Modulation - See REMARKS</p>		<ol style="list-style-type: none"> 1. Set the Tuner Amplifier as indicated in the MODE. 2. Adjustment and confirmation should be made after tuning in to the set carrier frequency of the Signal Generator. <p>Note: Contents of modulation</p> <ol style="list-style-type: none"> 1. For U.S.A., Canada, Other (Wide) & Japan <ul style="list-style-type: none"> o Stereo Audio: 1 kHz, 91% Pilot: 19 kHz, 9% 2. For Australia, Europe & Other (Narrow) <ul style="list-style-type: none"> o Stereo Audio: 1 kHz, 100%
2	Usable Sensitivity Adjustment	Distortion Meter to Tape 1 Record Output Jacks	<p>Tuner Amplifier Same as above</p> <p>Signal Generator Freq. - 98 MHz - 83 MHz (Japan)</p> <p>RF Level - 13.5 dBf</p> <p>Modulation - Mono</p>	Main P.C.B. Front-end IFT	<ol style="list-style-type: none"> 1. Set the Tuner Amplifier to Manual mode by pressing the Tuning Mode button. 2. Adjust the IFT to obtain minimum distortion (total harmonic distortion (THD): 3% or less). 3. Set the frequency of the Signal Generator to 90 MHz/106 MHz and check that the THD is 3% or less.
3	Center Voltage and THD Adjustment	DC Voltmeter between TP1 & TP2 on Main P.C.B. and Distortion Meter to Tape 1 Record Output Jacks	<p>Tuner Amplifier Same as above</p> <p>Signal Generator Freq. - 98 MHz - 83 MHz (Japan)</p> <p>RF Level - 65 dBf</p> <p>Modulation - Mono</p>	Main P.C.B. T104 T105	<ol style="list-style-type: none"> 1. Set the Tuner Amplifier to Manual mode. 2. Adjust T104 so that the reading on the DC voltmeter is 0 V \pm 20 mV. 3. Adjust T105 to obtain minimum distortion (THD: 0.05% or less). Repeat 2 and 3, if necessary.

STEP	ITEM	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
4	Muting Level Adjustment	Oscilloscope to Tape 1 Record Output Jacks	Tuner Amplifier Same as above Signal Generator Freq. - 98 MHz - 83 MHz (Japan) RF Level - 30 dBf Modulation - Stereo	Main P.C.B. VR102	1. Set the Tuner Amplifier to Auto mode. 2. Rotate VR102 fully counterclockwise. Then, return it clockwise gradually until a waveform appears on the oscilloscope. 3. Decrease the RF level of the Signal Generator until the waveform on the oscilloscope disappears. Then increase the RF level gradually until a waveform appears again. At this point, check that the RF level of the Signal Generator is 30 dBf \pm 6 dB.
5	Signal Strength Meter Level Adjustment	None	Tuner Amplifier Same as above Signal Generator Freq. - 98 MHz - 83 MHz (Japan) RF Level - 56 dBf Modulation - Stereo	Main P.C.B. VR105	1. Set the Tuner Amplifier to Auto mode. 2. Adjust VR105 so that all segments (1 - 5) of the signal strength meter light up. 3. Decrease the RF level of the Signal Generator to distinguish the segment 5. Next, increase it gradually so that the segment 5 starts illuminating. At this point, check that the RF level of the Signal Generator is 57 dBf \pm 4 dB.
6	Stereo Separation Adjustment	AC Voltmeter to Tape 1 Record Output Jacks	Tuner Amplifier Same as above Signal Generator Freq. - 98 MHz - 83 MHz (Japan) RF Level - 65 dBf Modulation - L or R only	Main P.C.B. VR103 IF Band Switch P.C.B. VR104 (Other only)	For U.S.A., Canada, Europe & Australia versions: 1. Set the Tuner Amplifier to Auto mode. 2. Apply modulation to only L channel. 3. Adjust VR103 to obtain minimum reading on the AC voltmeter at the R channel output jack. 4. Apply modulation to only R channel. 5. Check that the reading on the AC voltmeter at the L channel output jack is within \pm 1 dB with respect to the reading in 3. If not, repeat 2 through 4. For Other version: 1. Set the switches on the rear panel as follows: Freq. Step FM/AM - 100 kHz/10 kHz IF Band - Wide 2. Apply the same procedures as above. 3. Set the switches as follows: Freq. step FM/AM - 50 kHz/9 kHz IF Band - Narrow 4. Apply the same procedures as mentioned above. Adjust VR104 instead of VR103.

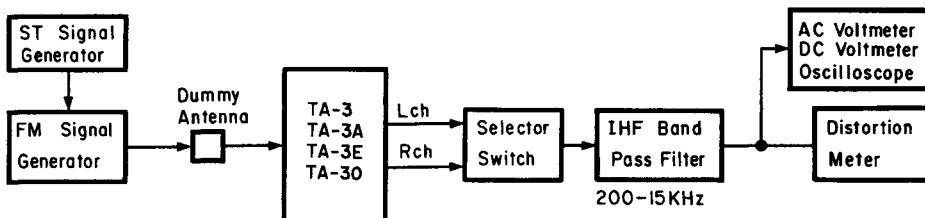


Fig. 4.1 FM Measuring Connection

4.2.2. AM Tuner Section

Note: Frequencies for Australia, Europe & Other (Narrow) are indicated in parentheses.

STEP	ITEM	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
1	Tuning Level Adjustment	DC Voltmeter between TP6 and TP5 (GND) on Main P.C.B.	Tuner Amplifier Monitor Selector - Tuner Band Selector - AM Rec.out Selector - Tuner Signal Generator Freq. - 520 (522) kHz/ 1710 (1611) kHz Modulation - 400 Hz 30%	Main P.C.B. T103	<ol style="list-style-type: none"> Set the frequency of the Signal Generator to 520 kHz (522 kHz) and make tuning. Adjust T103 to obtain 1 V ± 0.02 V on the DC voltmeter. Change the frequency to 1710 kHz (1611 kHz) and make tuning. Check whether the DC voltmeter reads 7.5 V to 8 V.
2	Tracking and IF Adjustment	AC Voltmeter to Tape 1 Record Output Jacks	Tuner Amplifier Same as above Signal Generator Freq. - 600 (603) kHz/ 1400 (1404) kHz RF Level - 82 dB _u Modulation - 400 Hz 30%	Main P.C.B. T101 T102 L102 VC101	<ol style="list-style-type: none"> Set the measurement instruments as shown in Fig. 4.2. Set the distance between the AM Loop Antenna of the TA-3/3A/3E/30 and a test loop to 60 cm. To obtain 56 dB_u/m at the AM Loop Antenna, set the RF level output of the AM Signal Generator to 82 dB_u as loss is 26 dB in this setting. Set the frequency of the Signal Generator to 600 kHz (603 kHz) and make tuning. Adjust T101 to obtain maximum reading on the AC voltmeter. Adjust T102 to obtain maximum reading on the AC voltmeter. Adjust L102 to obtain maximum reading on the AC voltmeter. Set the frequency to 1400 kHz (1404 kHz) and make tuning. Adjust VC101 to obtain maximum reading on the AC voltmeter. Repeat 2 through 7 once.
3	Signal Strength Meter Level Adjustment	None	Tuner Amplifier Same as above Signal Generator Freq. - 1000 (999) kHz RF Level - 106 dB _u Modulation - 400 Hz 30%	Main P.C.B. VR101	<ol style="list-style-type: none"> With the same setting as in Step 2, set the RF level output of the AM Signal Generator to 106 dB_u in order to obtain 80 dB_u/m at the AM Loop Antenna. Adjust VR101 so that the segment 5 of the signal strength meter starts illuminating. <p>Note: Before adjustment, select AM mode and wait for more than three minutes.</p>

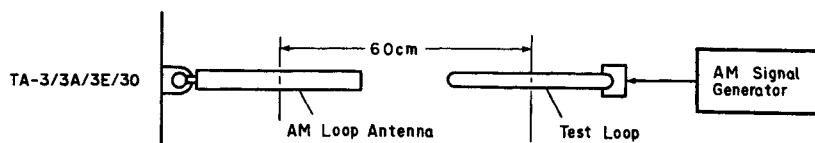


Fig. 4.2

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

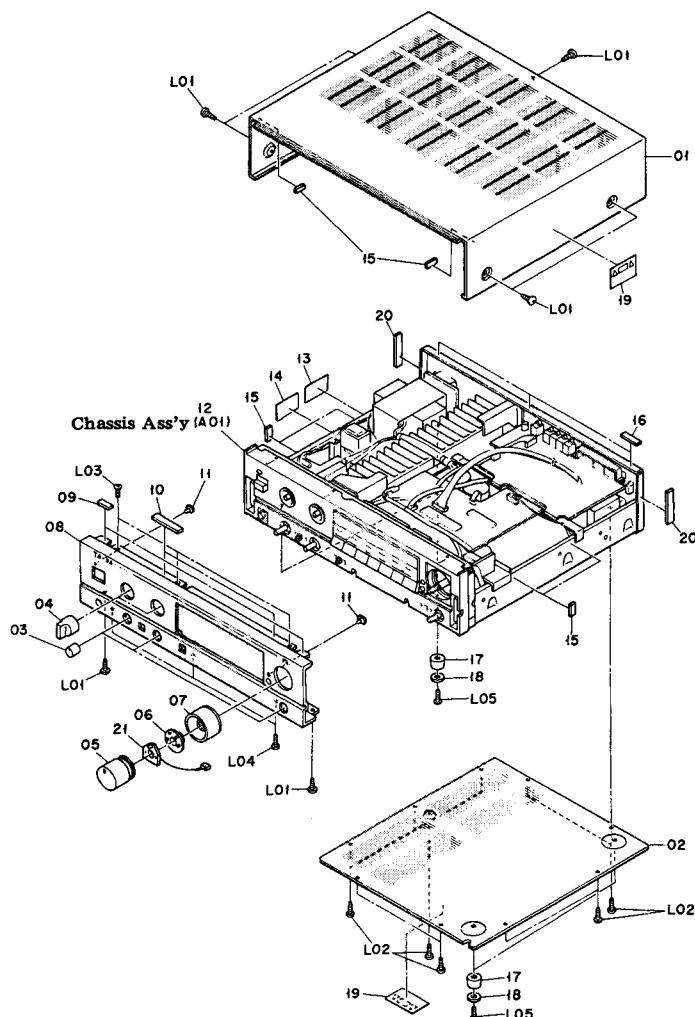


Fig. 5.1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty	
5.1. Synthesis								
01	OH05520A	Top Cover (TA-3/3E/30)	1	17	OJ05420A	Leg N (TA-3/3A/3E)	4	
	OH05429A	Top Cover (TA-3A)	1		OH05182A	Leg Ring (TA-30)	4	
02	OJ05727A	Bottom Cover	1		OH05183A	Leg (TA-30)	4	
03	HA05540A	Tone Knob Ass'y	3	18	OJ05461A	Leg Felt N (TA-3/3A/3E)	4	
04	HA05539A	Selector Knob Ass'y	2		OJ05428A	Leg Felt (TA-30)	4	
05	HA05537A	Volume Knob Ass'y	1		OM04377B	Caution Label (TA-3A)	2	
06	OJ05717A	LED Base	1		OJ05850A	Top Cover Cushion	2	
07	HA05538A	Balance/Volume Ring Ass'y	1	20	BA07440A	Volume LED P.C.B. Ass'y	1	
08	OH05404A	Front Panel (TA-3)	1	L01	OE03433A	BT3x6 @ Binding Projected (Black Chromate)	7	
	OH05402A	Front Panel (TA-3A)	1		L02	OE00868A	BT3x8 @ Binding	
	OH05403A	Front Panel (TA-3E)	1		L03	OE03054A	BT3x8 @ Countersunk	10
	OH05405A	Front Panel (TA-30)	1		L04	OE00921A	BT3x8 @ Binding	3
09	OJ05453A	Top Cover Sheet F	2		L05	OE00888A	BT3x12 @ Binding	3
10	OJ05754A	Top Cover Sheet FB	2			OM05280A	Serial No. Label (TA-3/3E/30)	4
11	OH05103A	LED Lens B	2			OM05247A	Serial No. Label (TA-3A)	1
12	—	Chassis Ass'y	1			OM05267A	Fuse Label T2.5A 250V (TA-3 (Australia)/3E)	1
13	OM05289A	Fuse Caution Label T500mA 250V (TA-3A)	1					
14	OM05290A	Fuse Caution Label T5A 250V (TA-3A)	1					
15	OJ05741A	Top Cover Spacer	6					
16	OJ05740A	Top Cover Sheet R	3					

5.2. Chassis Ass'y (A01)

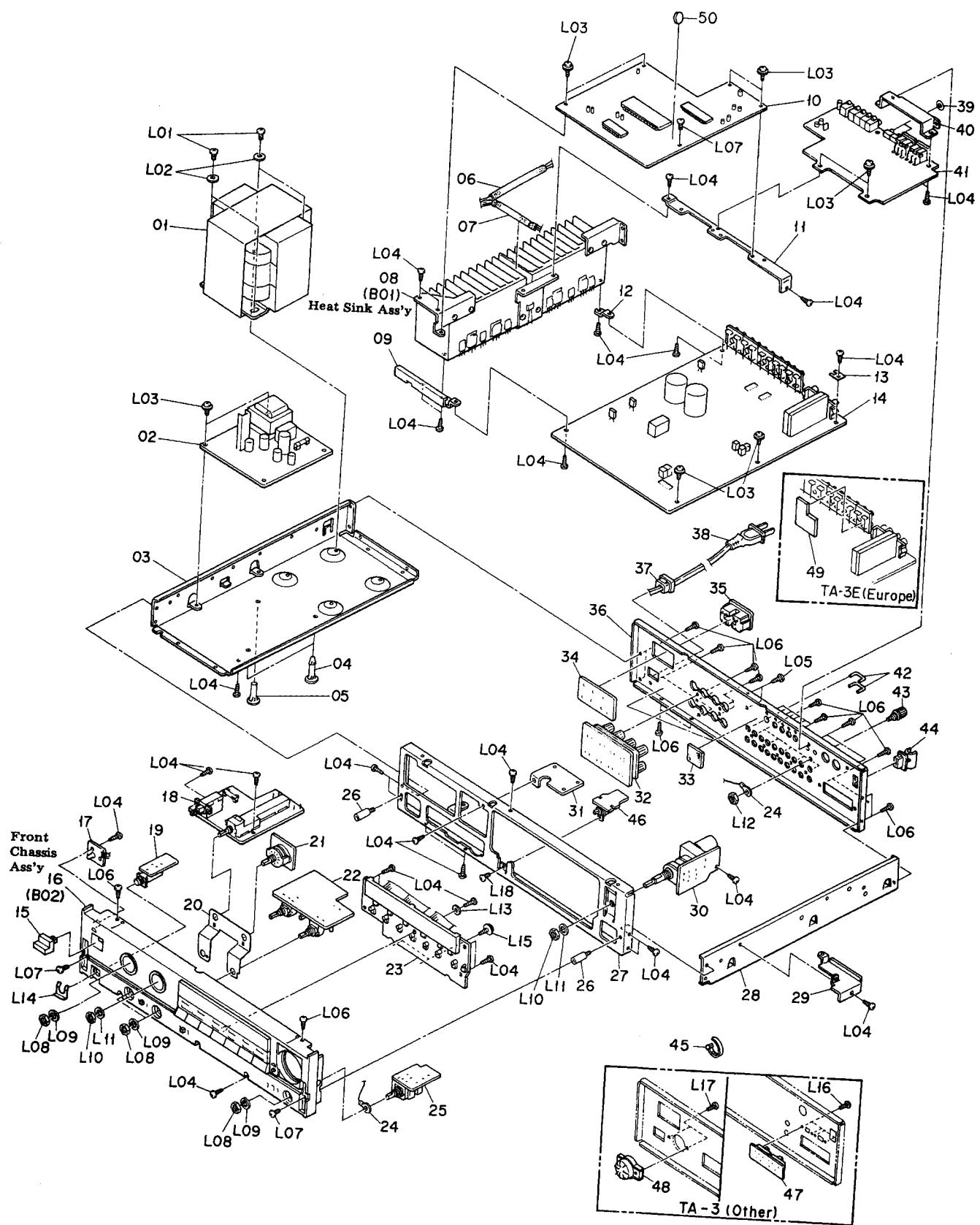


Fig. 5.2

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
5.2. Chassis Ass'y (A01)							
A01	—	Chassis Ass'y	1	37	OB90280A	Cord Bushing 2271	1
01	OB50131A	Power Transformer (TA-3 (Other))	1	38	OB80199A	AC Power Cord SPT-2 (TA-3 (Other)/3A)	1
02	OB50129A	Power Transformer (TA-3 (Australia)/3E)	1	OB80148A	AC Power Cord (TA-3 (Australia))	1	
03	OB50128A	Power Transformer (TA-3A)	1	OB80228A	AC Power Cord (TA-3E)	1	
04	OB50132A	Power Transformer (TA-30)	1	OB90274A	AC Power Cord (TA-30)	1	
05	BA07424A	Power Supply P.C.B. Ass'y (TA-3 (Other))	1	39	OJ05742A	P.C.B. Spacer	1
06	BA07426A	Power Supply P.C.B. Ass'y (TA-3 (Australia)/3E)	1	40	OJ05736A	Remote P.C.B. Holder	1
07	BA07422A	Power Supply P.C.B. Ass'y (TA-3A)	1	41	BA07442A	Video P.C.B. Ass'y (TA-3/3A/30)	1
08	BA07423A	Power Supply P.C.B. Ass'y (TA-30)	1	BA07459A	Video P.C.B. Ass'y (TA-3E)	1	
09	OJ05732A	Side Chassis R	1	42	OJ05710A	Shorting Pin	2
10	OJ05738A	Spacer Support A	2	43	JA04383A	Ground Terminal Ass'y	1
11	OJ05739A	Spacer Support B	1	44	OB90316A	AM Antenna Holder	1
12	OB80211A	Glass Tube 150	1	45	OB08515A	Insu-Lock 100	20
13	OB80212A	Glass Tube 100	1	46	BA07441A	Subsonic P.C.B. Ass'y	1
14	OJ05729A	Heat Sink Ass'y	1	47	BA07505A	IF Band Switch P.C.B. Ass'y (TA-3 (Other))	1
15	BA07563A	Logic P.C.B. Holder B	1	48	OB70049A	Voltage Selector Switch (TA-3 (Other))	1
16	BA07455A	Logic P.C.B. Ass'y (TA-3 (Australia)/3E)	1	49	BA07500A	Phono Input P.C.B. Ass'y (TA-3E)	1
17	BA07437A	Logic P.C.B. Ass'y (TA-3A)	1	50	OB90399A	Lithium Battery [B501]	1
18	BA07547A	Logic P.C.B. Ass'y (TA-30)	1	L01	OE03426A	ST4x8 ⊕ Pan Projected (Black Chromate) (TA-3/3E/30)	4
19	OJ05735A	Logic P.C.B. Holder	1	L02	OE00929A	M4x8 ⊕ Binding (TA-3A)	4
20	OJ05728A	P.C.B. Holder A	1	L03	OE00031A	Washer 4x8x0.5 (TA-3A)	4
21	OJ05670A	Earth Plate	2	L04	OE00868A	BT3x6 ⊕ Tapping (Black Chromate)	10
22	BA07419A	Main P.C.B. Ass'y (TA-3 (Other))	1	L05	OE03433A	BT3x8 ⊕ Binding	32
23	BA07420A	Main P.C.B. Ass'y (TA-3 (Australia))	1	L06	OE00921A	BT3x6 ⊕ Binding Projected (Black Chromate)	2
24	BA07417A	Main P.C.B. Ass'y (TA-3A)	1	L07	OE00766A	BT3x8 ⊕ Binding (Black Chromate)	20
25	BA07421A	Main P.C.B. Ass'y (TA-3E)	1	L08	OE03382A	M3x8 ⊕ Binding	3
26	BA07418A	Main P.C.B. Ass'y (TA-30)	1	L09	OE03383A	Nut Hex, M7	4
27	OH058325A	Power Button	1	L10	OE03375A	Washer M7	4
28	BA07504A	Front Chassis Ass'y	1	L11	OE03376A	Nut Hex, M9	2
29	BA07613A	Power LED P.C.B. Ass'y (TA-3 (Other))	1	L12	OJ05673A	Washer M9	2
30	BA07416A	Power Switch P.C.B. Ass'y (TA-3 (Australia)/3E)	1	L13	OE00071A	Nut 70ZN3A	1
31	BA07414A	Power Switch P.C.B. Ass'y (TA-3A)	1	L14	OJ05427A	Washer 3mm Fiber	1
32	BA07415A	Power Switch P.C.B. Ass'y (TA-30)	1	L15	OE03278A	Mounting Plate	1
33	BA07503A	Headphone P.C.B. Ass'y	1	L16	OE03202A	BT3x8 ⊕ Tapping (Black Chromate)	2
34	OJ05612A	Volume Ground Plate A	1	L17	OE00985A	M2.6x3 ⊕ Binding (Black Chromate) (TA-3 (Other))	4
35	BA07439A	Record Selector P.C.B. Ass'y	1	L18	OE003070A	M3x6 ⊕ Binding (Black Chromate) (TA-3 (Other))	2
36	BA07438A	Tone Control P.C.B. Ass'y (TA-3/3A/30)	1	—	OB09290A	M2.6x6 ⊕ Binding	1
37	BA07609A	Tone Control P.C.B. Ass'y (TA-3E)	1	—	OB09292A	Ceramic Capacitor 0.01 μ 50V Z (TA-3E)	2
38	BA07427A	Control Switch & Display P.C.B. Ass'y (TA-3/3A)	1	—	OM05270A	Ceramic Capacitor 0.1 μ 50V Z (TA-3E)	1
39	BA07428A	Control Switch & Display P.C.B. Ass'y (TA-3E)	1	—	OB90019A	Lithium Caution Label (TA-3E)	1
40	BA07548A	Control Switch & Display P.C.B. Ass'y (TA-30)	1	—	OB90400A	Insu-Lock	2
41	OJ05703A	Lug Terminal 7	2	—	OJ05214A	Fiber Washer 6mm	2
42	BA07502A	Loudness P.C.B. Ass'y	1	—	OE00174A	P.C.B. Cushion	2
43	OJ05737A	Front Stud	2			Earth Lug (TA-3E)	4
44	OJ05730A	Front Chassis	1				
45	OJ05731A	Chassis L	1				
46	OJ05733A	Volume Holder	1				
47	BA07501A	Motor Volume P.C.B. Ass'y	1				
48	OJ05726A	Front Holder	1				
49	BA07615A	Speaker Terminal P.C.B. Ass'y (TA-3/30)	1				
50	BA07457A	Speaker Terminal P.C.B. Ass'y (TA-3A)	1				
51	BA07458A	Speaker Terminal P.C.B. Ass'y (TA-3E)	1				
52	OJ05753A	Damping Sheet	2				
53	BA07544A	AC Outlet P.C.B. Ass'y (TA-3 (Other)/30)	1				
54	BA07456A	AC Outlet P.C.B. Ass'y (TA-3A)	1				
55	OB81928A	AC Outlet AC-T05LB57 (TA-3 (Other)/3A)	1				
56	OB81988A	AC Outlet (TA-3 (Australia))	1				
57	OB81987A	AC Outlet (TA-3E)	1				
58	OB81986A	AC Outlet 2P (TA-30)	1				
59	OH05413A	Rear Panel (TA-3 (Other))	1				
60	OH05414A	Rear Panel (TA-3 (Australia))	1				
61	OH05411A	Rear Panel (TA-3A)	1				
62	OH05415A	Rear Panel (TA-3E)	1				
63	OH05412A	Rear Panel (TA-30)	1				

5.3. Heat Sink Ass'y (B01)

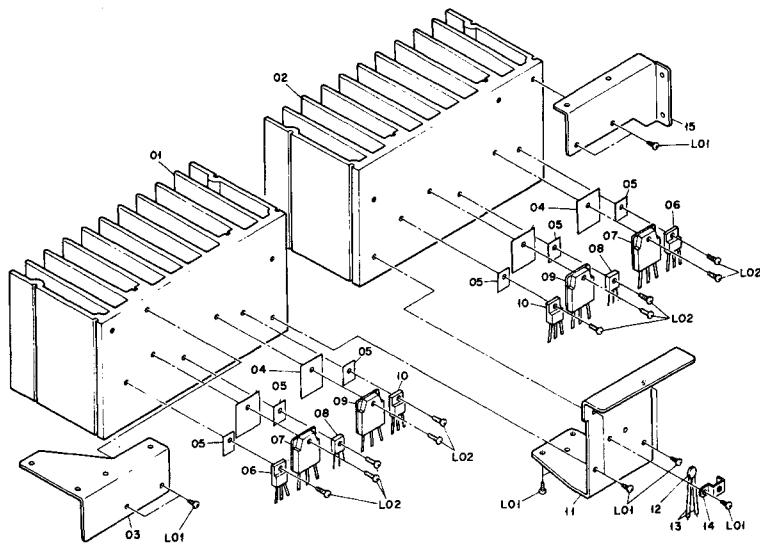


Fig. 5.3

5.4. Front Chassis Ass'y (B02)

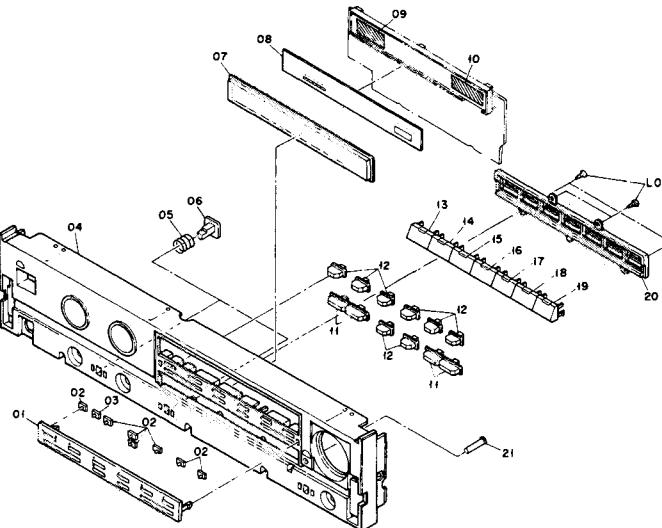


Fig. 5.4

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
5.3. Heat Sink Ass'y (B01)				5.4. Front Chassis Ass'y (B02)			
B01	—	Heat Sink Ass'y	1	B02	—	Front Chassis Ass'y	1
01	OJ05723A	Heat Sink A	1	01	OH05432A	Memory Plate	1
02	OJ05724A	Heat Sink B	1	02	OH05426A	Preset Lens A	7
03	OJ05718A	Heat Sink Holder F	1	03	OH05427A	Preset Lens B	1
04	OJ05671A	Insulator SIL 3P	4	04	OH05431A	Front Chassis	1
05	OJ05672A	Insulator SIL 220	6	05	OJ05406A	Push Spring	2
06	OB10293A	Transistor 2SA957 [Q311L,R]	2	06	OH05322A	Push Button	2
07	OB10295A	Transistor 2SC3856 (O,Y) [Q313L,R]	2	07	OH05326A	Display Lens	1
08	OB10287A	Transistor 2SB772 (P,Q) [Q309L,R]	2	08	OH05430A	Display Overlay 1089	1
09	OB10294A	Transistor 2SA1492 (O,Y) [Q312L,R]	2	09	OJ05708A	Diffuser Sheet A	1
10	OB10292A	Transistor 2SC2167 [Q310L,R]	2	10	OJ05709A	Diffuser Sheet B	1
11	OJ05725A	Joint Holder	1	11	OH05324A	Up/Down Button	4
12	OB19012A	Thermistor 50KD-5 [TH301]	1	12	OH05323A	Preset Button	8
13	OB80209A	Glass Tube 16	2	13	HA05546A	Phono Button Ass'y	1
14	OJ05615A	TH Holder	1	14	HA05547A	CD Button Ass'y	1
15	OJ05719A	Heat Sink Holder R	1	15	HA05548A	Tuner Button Ass'y	1
L01	OE00868A	BT3x8 @ Binding	13	16	HA05549A	Video 1 Button Ass'y	1
L02	OE00986A	M3x10 @ Binding	10	17	HA05550A	Video 2 Button Ass'y	1
—	OB90368A	Transistor Bush 3x1.4	4	18	HA05551A	Tape 1 Button Ass'y	1
				19	HA05552A	Tape 2 Button Ass'y	1
				20	OJ05712A	Button Base	1
				21	OH05438A	Mute Knob	1
				L01	OE00868A	BT3x8 @ Binding	4

6. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode is 1SS53, 1S1555, 1SS176 or 1N4148 unless otherwise specified.
 3. Following transistors are interchangeable with each other.
 a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
 b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
 4. Abbreviation for part name:
 TR — Transistor, SiD — Silicon Diode, ZD — Zener Diode, Varicap — Variable Capacitance Diode
 RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor
 CE — Electrolytic Capacitor, CML — Mylar Capacitor, CC — Ceramic Capacitor, CPP — PP Capacitor,
 CMM — Metalized Mylar Capacitor, CSP — Polystyrene Capacitor, C — Mica Capacitor

6.1. AC Outlet P.C.B. Ass'y

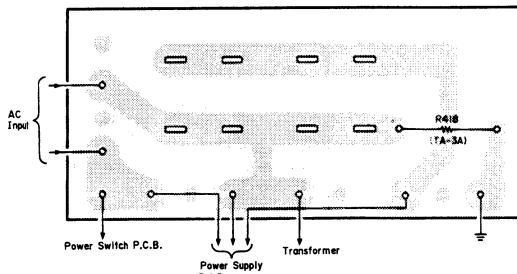


Fig. 6.1

6.3. Speaker Terminal P.C.B. Ass'y

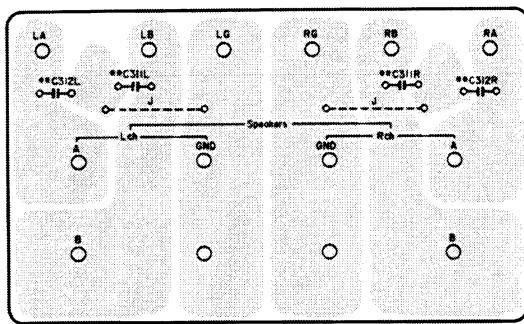


Fig. 6.3

6.2. Power Switch P.C.B. Ass'y

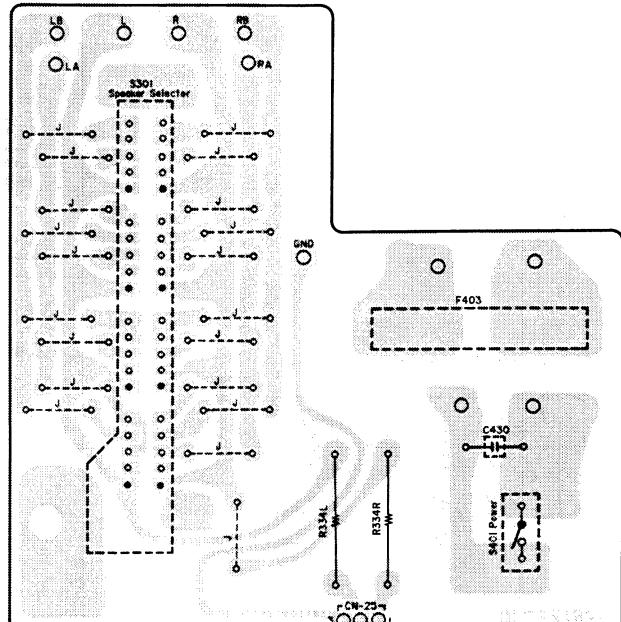


Fig. 6.2

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.1. AC Outlet P.C.B. Ass'y			6.3. Speaker Terminal P.C.B. Ass'y					
R418	BA07456A	AC Outlet P.C.B. Ass'y (TA-3A)	S301	OB70142A	Rotary Switch Power Switch (TA-3/3A/3E)	C311L,R	BA07615A	Speaker Terminal P.C.B. Ass'y
	BA07544A	AC Outlet P.C.B. Ass'y (TA-3 (Other)/30)	S401	OB71010A	Power Switch (TA-30)		BA07457A	Speaker Terminal P.C.B. Ass'y (TA-3A)
	OB60622A	AC Outlet P.C.B. RK 3.3M 1/2W J (TA-3A)	F403	OB71011A	Fuse T2.5A 250V (TA-3 (Australia)/3E)		BA07458A	Speaker Terminal P.C.B. Ass'y (TA-3E)
R334L,R C430	OB05919A	Insu-Lock 100 (TA-3 (Other)/30) (1)		OB90350A	Fuse T5A 250V (TA-3 (Other)/3A)		OB60647A	Speaker Terminal P.C.B.
	OB08515A			OB90348A	Fuse 5A 250V (TA-30)		OB05582A	CML 0.022 μ 50V J (TA-3E)
				OB90352A	Fuse Holder (TA-3 (Australia)/3E)		OB05582A	CML 0.022 μ 50V J (TA-3E)
6.2. Power Switch P.C.B. Ass'y				OB81848A	Fuse Holder SN-5051 (TA-3 (Other)/3A/30) (2)		OB81950A	Speaker Terminal 8P (1)
R334L,R C430	BA07413A	Power Switch P.C.B. Ass'y (TA-3 (Other))		OB81930A	Fuse Holder SN-5051 (TA-3 (Other)/3A/30) (2)			
	BA07416A	Power Switch P.C.B. Ass'y (TA-3 (Australia)/3E)						
	BA07414A	Power Switch P.C.B. Ass'y (TA-3A)						
R334L,R C430	BA07415A	Power Switch P.C.B. Ass'y (TA-30)						
	OB60640A	Power Switch P.C.B. RF 330 2W						
	OB24208A	CC 4700P AC400V						

6.11. Motor Volume P.C.B. Ass'y

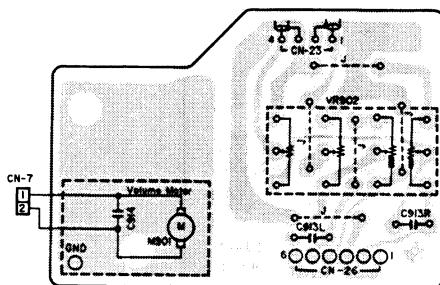


Fig. 6.11

6.12. IF Band Switch P.C.B. Ass'y

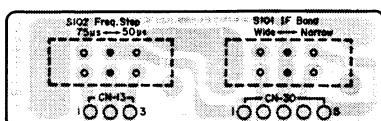


Fig. 6.12

6.13. Tone Control P.C.B. Ass'y

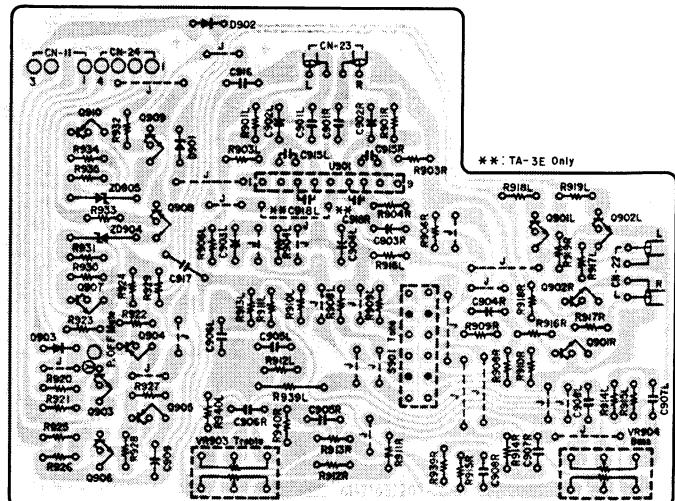


Fig. 6.13

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	
6.11. Motor Volume P.C.B. Ass'y			6.13. Tone Control P.C.B. Ass'y			R939L R939R R940L,R C901L,R C902L,R C903L,R C904L,R C905L,R C906L,R C907L,R C908L,R C909 C915L,R C916,917 C918L,R S901 CN11 CN22 CN23A CN23B CN24 Y-Y OB05576A OB09669A OB09705A OB41394A OB09332A OB09333A OB09218A OB05682A OB41378A OB09189A OB05832A OB01502A OB41739A OB09292A OB41735A OB70140A OB83494A OB83498A OB83548A OB83549A OB83496A OB83506A			RK 470 1/4W J RK 470 1/6W J RK 15K 1/6W J CPP 220P 50V J CE 2.2μ 50V (LN) CE 4.7μ 50V CE 4.7μ 16V (LN) CML 0.068μ 50V J CML 0.33μ 50V J CML 2700P 50V J CML 0.18μ 50V J CE 330μ 16V CC 22P 50V J CC 0.1μ 50V Z CC 100P 50V J (TA-3E) Push Switch 3P Connector Ass'y 350 4P Connector Ass'y 500 Lead Wire 400 Lead Wire 400 4P Connector Ass'y 400 Ter. Grip Ass'y (1)
VR902 C913L,R C914 CN7	BA07501A OB60641A OB30096A OB41739A CC 22P 50V J OB09292A OB83490A 2P Connector Ass'y 200 OB08515A OJ05703A	Motor Volume P.C.B. Ass'y Motor Volume P.C.B. VR 50KBx2 CC 0.1μ 50V Z 2P Connector Ass'y 200 Insu-Lock 100 (1) Lug Terminal 7 (1)	BA07438A BA07609A OB60620A OB11529A IC μPC4570HA OB06299A TR 2SC2878 OB06299A TR 2SC2878 OB06100A TR 2SC945 (K,P,Q) OB06103A TR 2SA733 (P,Q) OB06100A TR 2SC945 (K,P,Q) OB06100A TR 2SC945 (K,P,Q) OB06103A TR 2SA733 (P,Q) ZD904,905 OB12614A ZD 12V B2 OB06398A SiD 1SS176 OB12584A SiD 1N4148 OB06398A SiD 1SS176 VR903 OB30095A VR 50KCx2 OB30090A VR 100KCx2 R901L,R OB09653A RK 100 1/6W J R903L,R OB09729A RK 150K 1/6W J R904L,R OB09743A RK 560K 1/6W J R906L,R OB22457A RM 100K 1/4W F R908L,R OB22351A RM 12.0K 1/4W F R909L,R OB22351A RM 12.0K 1/4W F R910L,R OB22229A RM 1.00K 1/4W F R911L,R OB09703A RK 12K 1/6W J R912L,R OB09723A RK 82K 1/6W J R913L,R OB09684A RK 2K 1/6W J R914L,R OB09687A RK 2.7K 1/6W J R915L,R OB09673A RK 680 1/6W J R916L,R OB09677A RK 1K 1/6W J R917L,R OB09653A RK 100 1/6W J R918 OB09701A RK 10K 1/6W J R919L,R OB09701A RK 10K 1/6W J R920 OB09701A RK 10K 1/6W J R921 OB09725A RK 100K 1/6W J R922,923 OB09717A RK 47K 1/6W J R924 OB09725A RK 100K 1/6W J R925,926 OB09701A RK 10K 1/6W J R927,928 OB09701A RK 10K 1/6W J R929 OB09725A RK 100K 1/6W J R930 OB09677A RK 1K 1/6W J R931 OB09673A RK 680 1/6W J R932,933 OB09677A RK 1K 1/6W J R934 OB09677A RK 1K 1/6W J R935 OB09673A RK 680 1/6W J	RK 470 1/6W J RK 15K 1/6W J CPP 220P 50V J CE 2.2μ 50V (LN) CE 4.7μ 50V CE 4.7μ 16V (LN) CML 0.068μ 50V J CML 0.33μ 50V J CML 2700P 50V J CML 0.18μ 50V J CE 330μ 16V CC 22P 50V J CC 0.1μ 50V Z CC 100P 50V J (TA-3E) Push Switch 3P Connector Ass'y 350 4P Connector Ass'y 500 Lead Wire 400 Lead Wire 400 4P Connector Ass'y 400 Ter. Grip Ass'y (1)					
S101,102 CN13	BA07505A OB60645A OB70137A OB83492A	IF Band Switch P.C.B. Ass'y (TA-3 (Other)) IF Band Switch P.C.B. Slide Switch 3P Connector Ass'y 200 3P Connector Ass'y 300	OB09701A OB09653A RK 100 1/6W J OB09729A RK 150K 1/6W J OB09743A RK 560K 1/6W J OB22457A RM 100K 1/4W F OB22351A RM 12.0K 1/4W F OB22351A RM 12.0K 1/4W F OB22229A RM 1.00K 1/4W F OB09703A RK 12K 1/6W J OB09723A RK 82K 1/6W J OB09684A RK 2K 1/6W J OB09687A RK 2.7K 1/6W J OB09673A RK 680 1/6W J OB09677A RK 1K 1/6W J OB09653A RK 100 1/6W J OB09701A RK 10K 1/6W J OB09701A RK 10K 1/6W J OB09725A RK 100K 1/6W J OB09717A RK 47K 1/6W J OB09725A RK 100K 1/6W J OB09701A RK 10K 1/6W J OB09701A RK 10K 1/6W J OB09725A RK 100K 1/6W J OB09677A RK 1K 1/6W J OB09673A RK 680 1/6W J OB09677A RK 1K 1/6W J OB09673A RK 680 1/6W J	RK 470 1/6W J RK 15K 1/6W J CPP 220P 50V J CE 2.2μ 50V (LN) CE 4.7μ 50V CE 4.7μ 16V (LN) CML 0.068μ 50V J CML 0.33μ 50V J CML 2700P 50V J CML 0.18μ 50V J CE 330μ 16V CC 22P 50V J CC 0.1μ 50V Z CC 100P 50V J (TA-3E) Push Switch 3P Connector Ass'y 350 4P Connector Ass'y 500 Lead Wire 400 Lead Wire 400 4P Connector Ass'y 400 Ter. Grip Ass'y (1)					
CN30	OB83500A	5P Connector Ass'y 300	OB09701A OB09684A RK 2K 1/6W J OB09687A RK 2.7K 1/6W J OB09673A RK 680 1/6W J OB09677A RK 1K 1/6W J OB09653A RK 100 1/6W J OB09701A RK 10K 1/6W J OB09701A RK 10K 1/6W J OB09725A RK 100K 1/6W J OB09717A RK 47K 1/6W J OB09725A RK 100K 1/6W J OB09701A RK 10K 1/6W J OB09701A RK 10K 1/6W J OB09725A RK 100K 1/6W J OB09677A RK 1K 1/6W J OB09673A RK 680 1/6W J OB09677A RK 1K 1/6W J OB09673A RK 680 1/6W J	RK 470 1/6W J RK 15K 1/6W J CPP 220P 50V J CE 2.2μ 50V (LN) CE 4.7μ 50V CE 4.7μ 16V (LN) CML 0.068μ 50V J CML 0.33μ 50V J CML 2700P 50V J CML 0.18μ 50V J CE 330μ 16V CC 22P 50V J CC 0.1μ 50V Z CC 100P 50V J (TA-3E) Push Switch 3P Connector Ass'y 350 4P Connector Ass'y 500 Lead Wire 400 Lead Wire 400 4P Connector Ass'y 400 Ter. Grip Ass'y (1)					

6.14. Power Supply P.C.B. Ass'y

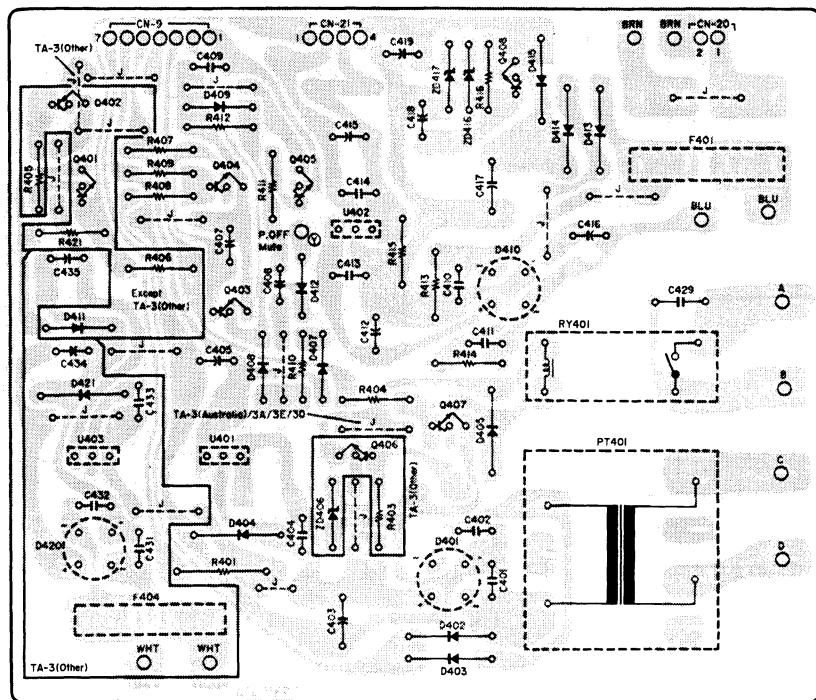


Fig 6.14

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	
6.14. Power Supply P.C.B. Ass'y			D420	OB12604A	SiD WO2M (TA-3 (Other))	C412	OB40095A	CE 1000 μ 25V	
	BA07424A	Power Supply P.C.B. Ass'y (TA-3 (Other))	D421	OB12586A	SiD 1N4002 (TA-3 (Other))	C413,414	OB09292A	CC 0.1 μ 50V Z	
	BA07426A	Power Supply P.C.B. Ass'y (TA-3 (Australia)/3E)	PT401	OB50137A	Sub Transformer (TA-3 (Other)/3A)	C415	OB40079A	CE 220 μ 16V	
	BA07422A	Power Supply P.C.B. Ass'y (TA-3A)		OB50138A	Sub Transformer (TA-30)	C416	OB40094A	CE 470 μ 25V	
	BA07423A	Power Supply P.C.B. Ass'y (TA-30)		OB50141A	Sub Transformer (TA-3 (Australia)/3E)	C417	OB40123A	CE 470 μ 50V	
U401	OB60619A	Power Supply P.C.B.	R401	OB24210A	RF 56 1W	C418	OB40100A	CE 10 μ 35V	
U402	OB11010A	IC μ PC7805H	R403	OB20519A	RK 820 1/2W J (TA-3 (Other))	C419	OB09126A	CE 100 μ 35V	
U403	OB11011A	IC μ PC7812H	R404	OB05622A	RK 2.2K 1/4W J	C420	OB41829A	CC 4700P AC400V	
	OB11010A	IC μ PC7805H (TA-3 (Other))	R405	OB05576A	RK 470 1/4W J (Except TA-3 (Other))	C421	OB09292A	CC 0.1 μ 50V Z (TA-3 (Other))	
Q401	OB06100A	TR 2SC945 (K,P,Q) (Except TA-3 (Other))	R406	OB05615A	RK 22K 1/4W J (Except TA-3 (Other))	C422	OB09292A	CC 0.1 μ 50V Z (TA-3 (Other))	
Q402	OB10097A	TR 2SA952 (K,L) (Except TA-3 (Other))	R407	OB09263A	RK 12K 1/4W J	C423	OB40082A	CE 1000 μ 16V (TA-3 (Other))	
Q403,404	OB06100A	TR 2SC945 (K,P,Q)	R408	OB01889A	RK 100K 1/4W J	C424	OB05899A	CE 220 μ 10V (TA-3 (Other))	
Q405	OB06100A	TR 2SC945 (K,P,Q)	R409	OB05615A	RK 2.2K 1/4W J	C425	OB90334A	Relay VS 12V	
Q406	OB10248A	TR 2SD313 (E) (TA-3 (Other))	R410	OB01682A	RK 6.8K 1/4W J	F401	OB90288A	Fuse T500mA 250V (TA-3 (Australia)/3E)	
Q407,408	OB06100A	TR 2SC945 (K,P,Q)	R411,412	OB01889A	RK 100K 1/4W J		OB90345A	Fuse T0.5A 250V (TA-3 (Other)/3A)	
ZD406	OB12390A	ZD 13VRD13EB3 (TA-3 (Other))	R413,414	OB01681A	RK 3.3K 1/4W J		OB90353A	Fuse 500mA 250V (TA-30)	
ZD416,417	OB12615A	ZD 15V B2	R415	OB05622A	RK 2.2K 1/4W J		F404	OB90289A	Fuse T1A 250V (TA-3 (Other))
D401	OB12604A	SiD WO2M	R416	OB05575A	RK 560 1/4W J		CN9	B83505A	7P Connector Ass'y 400
D402,403	OB12586A	SiD 1N4002	R421	OB01888A	RK 10K 1/4W J (Except TA-3 (Other))		CN20	OB83686A	2P Connector Ass'y 300
D404,405	OB12586A	SiD 1N4002			(TA-3 (Other))		CN21	OB83497A	4P Connector Ass'y 450
D407,408	OB12584A	SiD 1N4148					OB81848A	Fuse Holder (2)	
D409	OB12584A	SiD 1N4148							
D410	OB12604A	SiD WO2M							
D411	OB12584A	SiD 1N4148 (Except TA-3 (Other))	C404	OB09292A	CC 0.1 μ 50V Z				
D412	OB12584A	SiD 1N4148	C405	OB40068A	CE 1000 μ 10V				
D413,414	OB12586A	SiD 1N4002	C407,408	OB09372A	CE 2.2 μ 50V				
D415	OB12586A	SiD 1N4002	C409,410	OB09292A	CC 0.1 μ 50V Z				
			C411	OB09292A	CC 0.1 μ 50V Z				

6.15. Control Switch & Display P.C.B. Ass'y

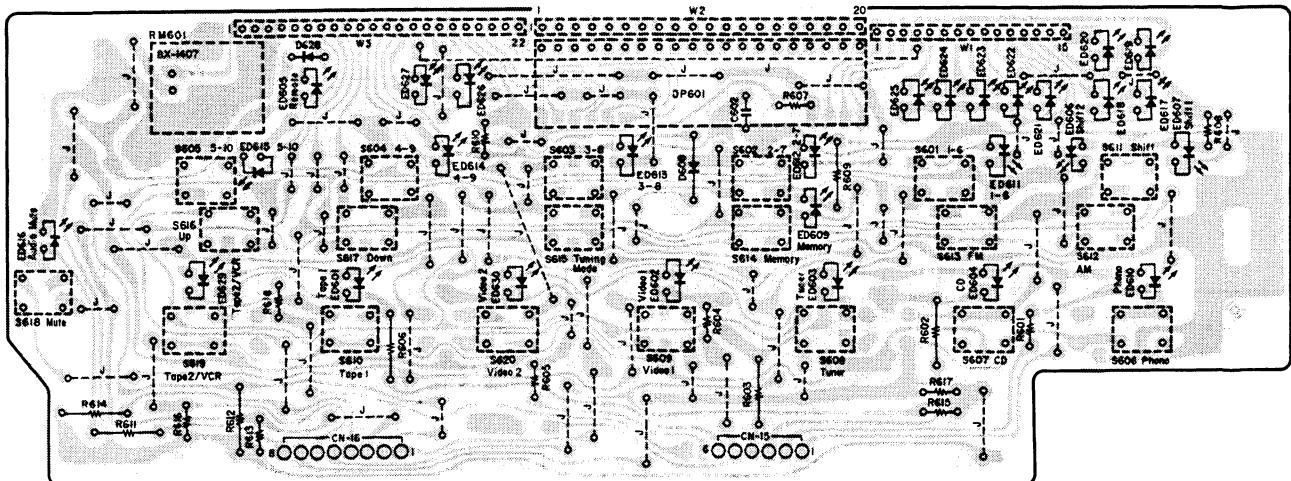


Fig. 6.15

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.15. Control Switch & Display P.C.B. Ass'y					
	BA07427A	Control Switch & Display P.C.B. Ass'y (TA-3/3A)	S601,602 S603,604 S605,606 S607,608 S609,610	OB70130A OB70130A OB70130A OB70130A OB70130A	Tact Switch Tact Switch Tact Switch Tact Switch Tact Switch
	BA07428A	Control Switch & Display P.C.B. Ass'y (TA-3E)	S611,612 S613,614 S615,616	OB70130A OB70130A OB70130A	Tact Switch Tact Switch Tact Switch
	BA07548A	Control Switch & Display P.C.B. Ass'y (TA-30)	S617,618 S619,620 CN15 CN16	OB70130A OB70130A OB83513A OB83513A	Tact Switch Tact Switch Ribbon Wire 4P 260 Ribbon Wire 4P 260
D608	OB60639A	Control Switch & Display P.C.B.	RM601	OB11511A	IC BX1407
D628	OB12584A	SiD 1N4148	D-D	OB83528A	Lead Wire 100
DP601	OB06398A	SiD 1SS176	W-1	OB83519A	Flat Wire 15P 70
	OB12608A	LED Display	W-2	OB83521A	Flat Wire 20P 70
		LTF2401	W-3	OB83670A	Flat Wire 22P 70
		(TA-3/3A)			(TA-3E)
	OB12616A	LED Display		OB83520A	Flat Wire 18P 70
		LTF2501		OE00868A	(TA-3/3A/30)
		(TA-3E/30)			BT3x8 ⊕ Binding (2)
ED601,602	OB12395A	LED P-Green		OH05428A	Display Reflector (1)
ED603,604	OB12395A	LED P-Green		OJ05416A	LED Reflector (7)
ED605,606	OB12395A	LED P-Green			
ED607	OB12395A	LED P-Green			
ED609,610	OB12395A	LED P-Green			
ED611,612	OB12395A	LED P-Green			
ED613,614	OB12395A	LED P-Green			
ED615,616	OB12395A	LED P-Green			
ED617,618	OB12625A	LED P-Green			
ED619,620	OB12625A	LED P-Green			
ED621,622	OB12395A	LED P-Green			
ED623,624	OB12395A	LED P-Green			
ED625	OB12395A	LED P-Green			
ED626	OB12625A	LED P-Green			
ED627	OB12625A	LED P-Green			
ED629,630	OB12395A	LED P-Green			
R601	OB09681A	RK 1.5K 1/6W J			
R602,603	OB05698A	RK 1.5K 1/4W J			
R604,605	OB09681A	RK 1.5K 1/6W J			
R606	OB05698A	RK 1.5K 1/4W J			
R607	OB09669A	RK 470 1/6W J			
R608	OB09661A	RK 220 1/6W J			
R609	OB01933A	RK 220 1/4W J			
R610	OB09661A	RK 220 1/6W J			
R611	OB01933A	RK 220 1/4W J			
R612	OB01889A	RK 100K 1/4W J			
R613	OB09725A	RK 100K 1/6W J			
R614	OB01889A	RK 100K 1/4W J			
R615	OB09725A	RK 100K 1/6W J			
R616,617	OB09725A	RK 100K 1/6W J			
R618	OB09681A	RK 1.5K 1/6W J			
C602	OB09290A	CC 0.01μ 50V Z			

6.16. Video P.C.B. Ass'y

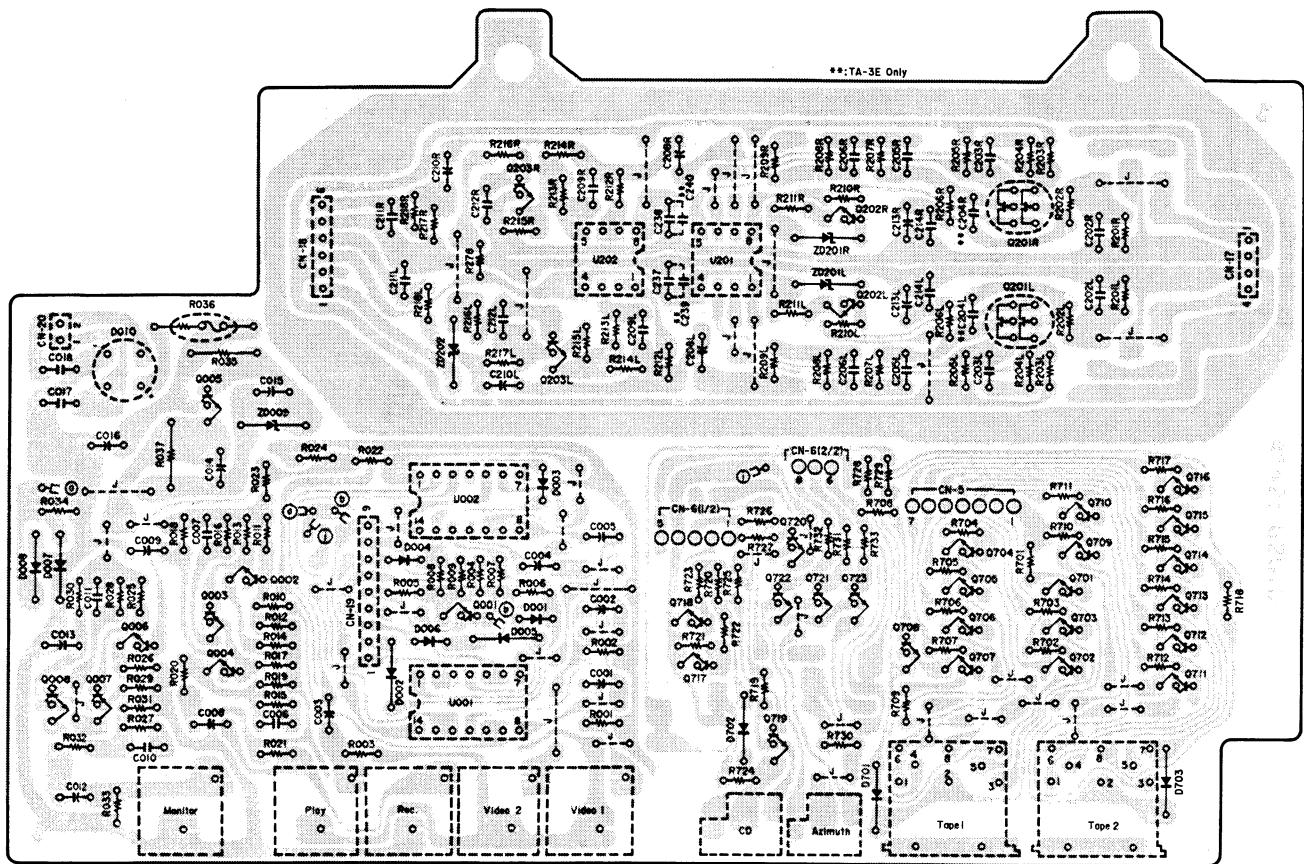


Fig. 6.16

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.16. Video P.C.B. Ass'y					
	BA07442A	Video P.C.B. Ass'y (TA-3/3A/30)	R212L,R	OB09687A	RK 2.7K 1/6W J
	BA07459A	Video P.C.B. Ass'y (TA-3E)	R213L,R	OB09741A	RK 470K 1/6W J
U001,002	OB06046A	Video P.C.B.	R214L,R	OB09693A	RK 4.7K 1/6W J
	OB06169A	IC TC4066BP	R215L,R	OB09749A	RK 1M 1/6W J
U201	OB06146A	IC NJM4558DD	R216L,R	OB09741A	RK 470K 1/6W J
U202	OB11005A	IC 072DE	R217L,R	OB09725A	RK 100K 1/6W J
Q001	OB06013A	TR 2SA733 (P,Q)	R218L,R	OB09657A	RK 150 1/6W J
Q002	OB06100A	TR 2SC945 (K,P,Q)	R278	OB09741A	RK 470K 1/6W J
Q003	OB06013A	TR 2SA733 (P,Q)	R701,702	OB09701A	RK 10K 1/6W J
Q004	OB06100A	TR 2SC945 (K,P,Q)	R703,704	OB09701A	RK 10K 1/6W J
Q005	OB06452A	TR 2SD1406	R705,706	OB09701A	RK 10K 1/6W J
Q006	OB06100A	TR 2SC945 (K,P,Q)	R707,708	OB09701A	RK 10K 1/6W J
Q007	OB06013A	TR 2SA733 (P,Q)	R709	OB09677A	RK 1K 1/6W J
Q008	OB06100A	TR 2SC945 (K,P,Q)	R710,711	OB09701A	RK 10K 1/6W J
Q201L,R	OB10188A	FET 2SK240 (BL)	R712,713	OB09701A	RK 10K 1/6W J
Q202L,R	OB06100A	TR 2SC945 (K,P,Q)	R714,715	OB09701A	RK 10K 1/6W J
Q203L,R	OB06299A	TR 2SC2878	R724	OB09637A	RK 22 1/6W J
Q701,702	OB06100A	TR 2SC945 (K,P,Q)	R725,726	OB09701A	RK 10K 1/6W J
Q703,704	OB06100A	TR 2SC945 (K,P,Q)	R727	OB09701A	RK 10K 1/6W J
Q705,706	OB06100A	TR 2SC945 (K,P,Q)	R728,729	OB09637A	RK 22 1/6W J
Q707,708	OB06100A	TR 2SC945 (K,P,Q)	R730	OB09637A	RK 22 1/6W J
Q709,710	OB06100A	TR 2SC945 (K,P,Q)	R731,732	OB09701A	RK 10K 1/6W J
Q711,712	OB06100A	TR 2SC945 (K,P,Q)	R733	OB09701A	RK 10K 1/6W J
Q713,714	OB06100A	TR 2SC945 (K,P,Q)	C001,002	OB01862A	CE 22μ 16V
Q715,716	OB06100A	TR 2SC945 (K,P,Q)	C003,004	OB01862A	CE 22μ 16V
Q717,718	OB06100A	TR 2SC945 (K,P,Q)	C005	OB01862A	CE 22μ 16V
Q719,720	OB06100A	TR 2SC945 (K,P,Q)	C006	OB05905A	CC 5P 50V C
Q721,722	OB06100A	TR 2SC945 (K,P,Q)	C007	OB41738A	CC 390P 50V J
Q723	OB06100A	TR 2SC945 (K,P,Q)	C008	OB40082A	CE 1000μ 16V
ZD009	OB12390A	ZD 13V RD13EB3	C009	OB01400A	CE 100μ 16V
ZD201L,R	OB06233A	ZD 10V RD10EB3	C010	OB05905A	CC 5P 50V C
ZD202	OB12627A	ZD 18V B2	C011	OB41738A	CC 390P 50V J
D001	OB06398A	SID ISS176	C012	OB40082A	CE 1000μ 16V
D002	OB12584A	SID 1N4148	C013,014	OB01400A	CE 100μ 16V
D003,004	OB06398A	SID ISS176	C015	OB01398A	CE 220μ 16V
D005	OB12584A	SID 1N4148	C016	OB40094A	CE 470μ 25V
D006	OB06398A	SID ISS176	C017,018	OB09292A	CC 0.1μ 50V Z
D007,008	OB12584A	SID 1N4148	C202L,R	OB41894A	CSP 100P 100V J
D010	OB12604A	SID WO2M			(TA-3/3A/30)
D701,702	OB12584A	SID 1N4148		OB09281A	CC 150P 50V K
D703	OB12584A	SID 1N4148			(TA-3E)
R001,002	OB09650A	RK 75 1/6W J	C204L,R	OB41735A	CC 100P 50V J
R003	OB09650A	RK 75 1/6W J			(TA-3E)
R004,005	OB09749A	RK 1M 1/6W J	C203L,R	OB41175A	CML 0.15μ 50V J
R006,007	OB09749A	RK 1M 1/6W J	C205L,R	OB41138A	CPP 3600P 100V G
R008,009	OB09749A	RK 1M 1/6W J	C206L,R	OB41125A	CPP 1000P 100V G
R010	OB09651A	RK 82 1/6W J	C208L,R	OB09332A	CE 2.2μ 50V (LN)
R011	OB09691A	RK 3.9K 1/6W J	C209L,R	OB05582A	CML 0.022μ 50V J
R012	OB09679A	RK 1.2K 1/6W J	C210L,R	OB09148A	CE 10μ 25V (LN)
R013	OB09677A	RK 1K 1/6W J	C211L,R	OB41209A	CE 220P 100V J
R014	OB09665A	RK 330 1/6W J	C212L,R	OB09292A	CC 0.1μ 50V Z
R015,016	OB09669A	RK 470 1/6W J	C213L,R	OB09137A	CE 22μ 25V
R017	OB09683A	RK 1.8K 1/6W J	C214L,R	OB05681A	CML 0.01μ 50V J
R018	OB09653A	RK 100 1/6W J	C237,238	OB05796A	CML 0.047μ 50V J
R019	OB09661A	RK 220 1/6W J	C239,240	OB09291A	CC 0.022μ 50V Z
R020	OB09649A	RK 68 1/6W J			(TA-3E)
R021	OB09701A	RK 10K 1/6W J	CN5	OB83681A	7P Connector Ass'y
R022	OB09651A	RK 82 1/6W J			300
R023	OB09691A	RK 3.9K 1/6W J	CN6	OB83680A	8P Connector Ass'y
R024	OB09679A	RK 1.2K 1/6W J			
R025	OB09677A	RK 1K 1/6W J	CN17	OB81761A	4P-T Post
R026	OB09665A	RK 330 1/6W J	CN18	OB81763A	6P-T Post
R027,028	OB09669A	RK 470 1/6W J	CN19	OB81766A	9P-T Post
R029	OB09683A	RK 1.8K 1/6W J	CN20	OB81759A	2P-T Post
R030	OB09653A	RK 100 1/6W J	A-A	OB83463A	Lead Wire 60
R031	OB09661A	RK 220 1/6W J	B-B	OB83463A	Lead Wire 60
R032	OB09649A	RK 68 1/6W J	J-J	OB83676A	Lead Wire 100
R033	OB09701A	RK 10K 1/6W J		OB81754A	DIN Socket 8P (2)
R034	OB09725A	RK 100K 1/6W J		OB81947A	Pin Jack 1P (5)
R035	OB05698A	RK 1.5K 1/4W J		OB81952A	ST Mini Jack (2)
R037	OB01857A	RK 1K 1/4W J			
R036	OB24023A	Fuse Resistor 1			
R201L,R	OB09718A	RK 51K 1/6W J			
R202L,R	OB09623A	RK 5.6 1/6W J			
R203L,R	OB22305A	RM 4.70K 1/4W F			
R204L,R	OB09637A	RK 22 1/6W J			
R205L,R	OB22305A	RM 4.70K 1/4W F			
R206L,R	OB22250A	RM 1.60K 1/4W F			
R207L,R	OB09561A	RM 909K 1/4W F			
R208L,R	OB22443A	RM 75.0K 1/4W F			
R209L,R	OB09669A	RK 470 1/6W J			
R210L,R	OB09695A	RK 5.6K 1/6W J			
R211L,R	OB22256A	RM 1.80K 1/4W F			

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.17. Logic P.C.B. Ass'y								
	BA07563A	Logic P.C.B. Ass'y (TA-3 (Other))	R533	OB09689A	RK 3.3K 1/6W J	C522	OB09291A	CC 0.022μ 50V Z
	BA07455A	Logic P.C.B. Ass'y (TA-3 (Australia)/3E)	R534	OB09683A	RK 1.8K 1/6W J	C523,524	OB01674A	CE 10μ 25V
	BA07437A	Logic P.C.B. Ass'y (TA-3A)	R535	OB09689A	RK 3.3K 1/6W J	C525	OB01409A	CE 47μ 25V
	BA07547A	Logic P.C.B. Ass'y (TA-30)	R536,537	OB09701A	RK 10K 1/6W J	C526	OB40117A	CE 22μ 50V
			R538,539	OB09701A	RK 10K 1/6W J	C527,528	OB09291A	CC 0.022μ 50V Z
			R540,541	OB09701A	RK 10K 1/6W J	C529	OB01405A	CE 1μ 50V
			R542	OB09693A	RK 4.7K 1/6W J	C530	OB41737A	CC 330P 50V J
					(TA-3 (Other)/3E)	C531	OB09291A	CC 0.022μ 50V Z
					(TA-3 (Other)/3E)	C532	OB40029A	CE 4.7μ 50V
			R543,544	OB09701A	RK 10K 1/6W J	C533,534	OB09286A	CC 470P 50V K
					(TA-3 (Other)/3E)	C535,536	OB09291A	CC 0.022μ 50V Z
			R545,546	OB09701A	RK 10K 1/6W J	C537	OB09291A	CC 0.022μ 50V Z
	OB060638A	Logic P.C.B.			(TA-3 (Other)/3E)	CN1	OB81759A	2P-T Post
U501	OB11159A	IC TD6104P	R547	OB09709A	RK 22K 1/6W J	CN2,3	OB81762A	5P-T Post
U502	OB11161A	IC TC9147BP			(TA-3 (Other)/3E)	CN4	OB81761A	4P-T Post
U503	OB11502A	IC μPD75104CW	R548,549	OB09717A	RK 47K 1/6W J	CN5	OB81764A	7P-T Post
U504	OB11160A	IC TD6301AP	R550	OB09717A	RK 47K 1/6W J	CN6	OB81765A	8P-T Post
U505	OB11244A	IC LB1413N	R551,552	OB09661A	RK 220 1/6W J	CN7	OB81759A	2P-T Post
U506	OB11530A	IC BA6208	R553,554	OB09661A	RK 220 1/6W J	CN8	OB81766A	9P-T Post
U507	OB11518A	IC μPD74HC237	R555,556	OB09661A	RK 220 1/6W J	CN9	OB81764A	7P-T Post
Q501,502	OB10265A	TR 2SC1842 (E)	R557,558	OB09661A	RK 220 1/6W J	CN11	OB81760A	3P-T Post
Q503	OB06013A	TR 2SA733 (P,Q)	R559,560	OB09661A	RK 220 1/6W J	CN12	OB81759A	2P-T Post
Q504,505	OB06100A	TR 2SC945 (K,P,Q)	R561,562	OB09661A	RK 220 1/6W J	CN13	OB81760A	3P-T Post
Q506,507	OB06100A	TR 2SC945 (K,P,Q)	R563,564	OB09661A	RK 220 1/6W J			
Q508	OB06013A	TR 2SA733 (P,Q)	R565,566	OB09661A	RK 220 1/6W J			
Q509,510	OB06100A	TR 2SC945 (K,P,Q)	R567,568	OB09661A	RK 220 1/6W J	CN14	OB81762A	(TA-3 (Other))
		(TA-3 (Other)/3E)	R569,570	OB09661A	RK 220 1/6W J	E-E	OB83530A	5P-T Post
Q511,512	OB06100A	TR 2SC945 (K,P,Q)	R571	OB09661A	RK 220 1/6W J	F-F	OB83531A	Lead Wire 140
		(TA-3 (Other)/3E)	R572	OB09653A	RK 100 1/6W J	G-G	OB83529A	Lead Wire 60
Q513,514	OB06100A	TR 2SC945 (K,P,Q)	R573	OB09307A	RK 4.3K 1/4W J	H-H	OB83508A	Ribbon Wire 2P
Q515,516	OB06100A	TR 2SC945 (K,P,Q)	R574	OB09661A	RK 220 1/6W J	L-L	OB83688A	Ribbon Wire 4P
Q517,518	OB06100A	TR 2SC945 (K,P,Q)	R575,576	OB09654A	RK 110 1/6W J	M-M	OB83534A	(TA-3 (Other)/3E)
Q519,520	OB06100A	TR 2SC945 (K,P,Q)	R577	OB09654A	RK 110 1/6W J	N-N	OB83534A	Lead Wire 80
Q521,522	OB06100A	TR 2SC945 (K,P,Q)			(TA-3 (Other)/3E)		0J05751A	Lead Wire 80
Q523,524	OB06100A	TR 2SC945 (K,P,Q)			(TA-3 (Other)/3E)		0J05752A	IC Shield Plate A (1)
Q525	OB06013A	TR 2SA733 (P,Q)			(TA-3 (Other)/3E)			IC Shield Plate B (1)
Q526	OB10263A	TR 2SC2060	R578	OB09665A	RK 330 1/6W J			
Q527,528	OB06100A	TR 2SC945 (K,P,Q)	R579	OB09557A	RK 470 1/4W J			
Q529	OB06100A	TR 2SC945 (K,P,Q)	R580	OB09657A	RK 150 1/6W J			
Q530,531	OB06013A	TR 2SA733 (P,Q)	R581	OB09669A	RK 470 1/6W J			
Q532,533	OB06013A	TR 2SA733 (P,Q)	R582	OB09677A	RK 1K 1/6W J			
Q534,535	OB06013A	TR 2SA733 (P,Q)	R583	OB09701A	RK 10K 1/6W J			
Q536	OB06013A	TR 2SA733 (P,Q)	R584	OB09717A	RK 47K 1/6W J			
ZD520	OB12156A	ZD 6.8V B2	R585	OB09661A	RK 220 1/6W J			
D501	OB12584A	SiD 1N4148	R586,587	OB01888A	RK 10K 1/4W J			
D502	OB06398A	SiD 1S176	R588,589	OB01888A	RK 10K 1/4W J			
D503,504	OB12584A	SiD 1N4148	R590,591	OB01888A	RK 10K 1/4W J			
D505,506	OB06398A	SiD 1S176	R592	OB01888A	RK 10K 1/4W J			
D507	OB12584A	SiD 1N4148	R593,594	OB09701A	RK 10K 1/6W J			
D508	OB06398A	SiD 1S176	R595	OB09701A	RK 10K 1/6W J			
		(TA-3 (Other)/3E)	R596,597	OB01888A	RK 10K 1/4W J			
D509,510	OB06398A	SiD 1S176	R598	OB09701A	RK 10K 1/6W J			
D511,512	OB06398A	SiD 1S176	R599	OB09677A	RK 1K 1/6W J			
D513	OB06398A	SiD 1S176	R600	OB09701A	RK 10K 1/6W J			
D514	OB12584A	SiD 1N4148	R601	OB01933A	RK 220 1/4W J			
D515	OB06398A	SiD 1S176	R602	OB09725A	RK 100K 1/6W J			
X501	OB92006A	X'tal 7.2MHz	R603,5104	OB09701A	RK 10K 1/6W J			
X502	OB92014A	Ceramic Resonator	R604,5106	OB09717A	RK 47K 1/6W J			
		4MHz	R605,5108	OB09717A	RK 47K 1/6W J			
L501	OB51274A	Coil 22μH	R606,5109	OB09717A	RK 47K 1/6W J			
L502	OB51291A	Coil 47μH	R607,5110	OB09717A	RK 47K 1/6W J			
R501	OB09677A	RK 1K 1/6W J	R608,5111	OB09725A	RK 100K 1/6W J			
R502	OB09661A	RK 220 1/6W J	R609,5112	OB09707A	RK 18K 1/6W J			
		(TA-3/3A/30)	R610,5113	OB01889A	RK 100K 1/4W J			
		(TA-3E)	R611,5114	OB01889A	RK 100K 1/4W J			
			R612,5115	OB09661A	RK 220 1/6W J			
R503,504	OB09721A	RK 68K 1/6W J	R613,5116	OB09657A	RK 150 1/6W J			
R505	OB09725A	RK 100K 1/6W J	R614,5117	OB01889A	RK 100K 1/4W J			
R506	OB01889A	RK 100K 1/4W J	C501	OB09288A	CC 1000P 50V K			
		(TA-3/3A/3E)	C502	OB05899A	CE 220μ 10V			
R507	OB09725A	RK 100K 1/6W J	C503	OB09291A	CC 0.022μ 50V Z			
R508	OB01888A	RK 10K 1/4W J	C504	OB41900A	CC 39P 50V J			
R509	OB09677A	RK 1K 1/6W J		OB41735A	CC 100P 50V J			
R510	OB09699A	RK 8.2K 1/6W J			(TA-30)			
R511	OB01888A	RK 10K 1/4W J	C505	OB09586A	CC 2200P 50V K			
R512	OB00346A	RK 1K 1/2W J	C506	OB09290A	CC 0.01μ 50V Z			
R513	OB01888A	RK 10K 1/4W J	C507	OB01405A	CE 1μ 50V			
R514	OB01889A	RK 100K 1/4W J	C508	OB01400A	CE 100μ 16V			
R515,516	OB09725A	RK 100K 1/6W J	C509,5110	OB09291A	CC 0.022μ 50V Z			
R517	OB01889A	RK 100K 1/4W J	C511	OB40067A	CE 470μ 10V			
R518,519	OB09697A	RK 6.8K 1/6W J	C512,5113	OB41740A	CC 33P 50V J			
R520,521	OB01857A	RK 1K 1/4W J	C514	OB01405A	CE 1μ 50V			
R522,523	OB09677A	RK 1K 1/6W J	C515	OB40025A	CE 0.47μ 50V			
R524,525	OB09677A	RK 1K 1/6W J	C516	OB09327A	CE 0.33μ 50V			
R526,527	OB09677A	RK 1K 1/6W J	C517	OB41618A	CC 0.1μ 25V J			
R528,529	OB09677A	RK 1K 1/6W J	C518	OB40103A	CE 47μ 35V			
R530,531	OB09677A	RK 1K 1/6W J	C519,520	OB09793A	CC 30P 50V J			
R532	OB09677A	RK 1K 1/6W J	C521	OB09387A	CC 0.047μ 50V Z			

6.17. Logic P.C.B. Ass'y

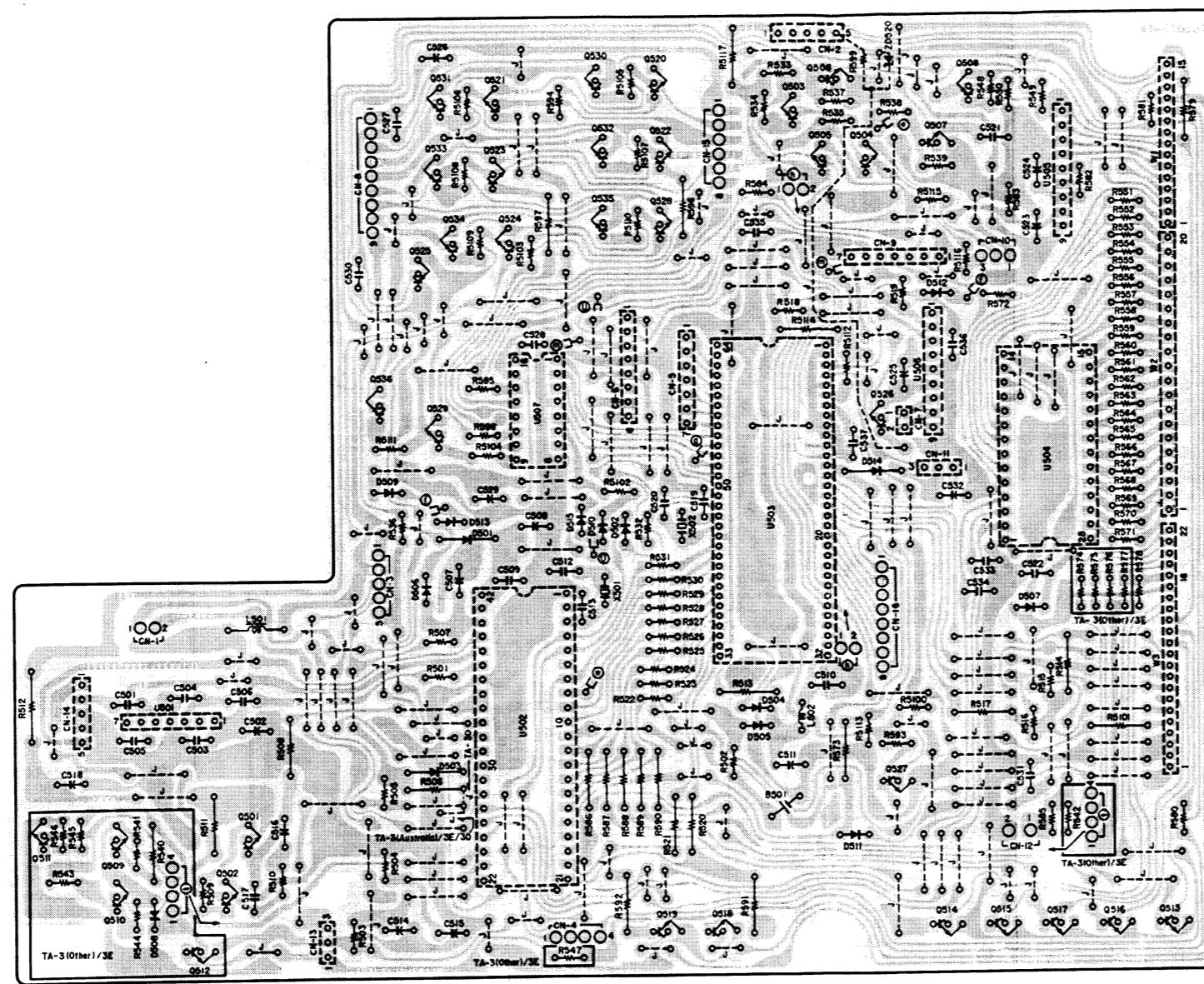


Fig. 6.17

6.18. Main P.C.B. Ass'y

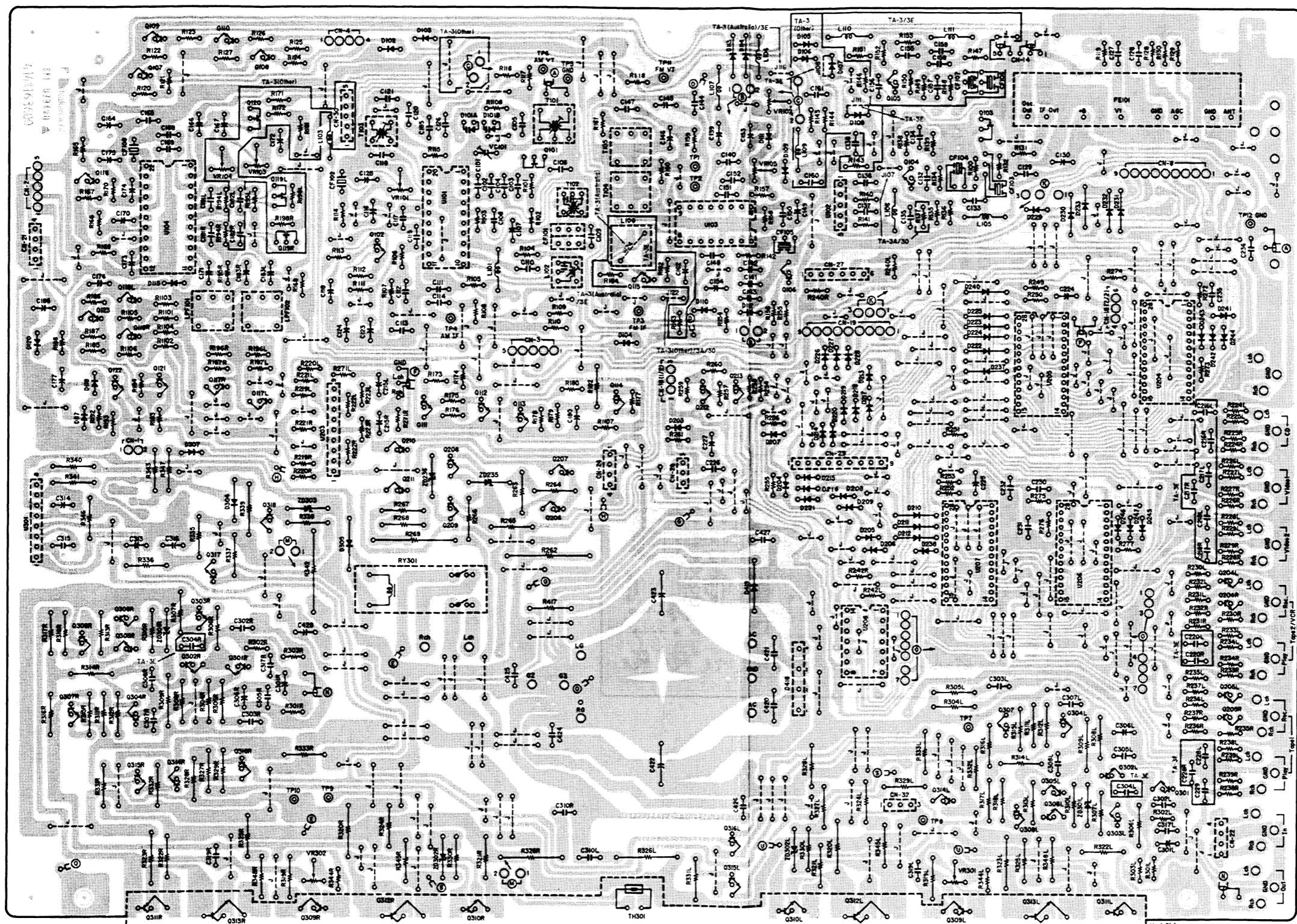


Fig. 6.18

Schematic Ref. No.	Part No.	Description
6.18. Main P.C.B. Ass'y		
	BA07419A	Main P.C.B. Ass'y (TA-3 (Other))
	BA07420A	Main P.C.B. Ass'y (TA-3 (Australia))
	BA07417A	Main P.C.B. Ass'y (TA-3A)
	BA07421A	Main P.C.B. Ass'y (TA-3E)
	BA07418A	Main P.C.B. Ass'y (TA-30)
	OB60634A	Main P.C.B.
U101	OB11243A	IC LA1247
U102	OB11156A	IC TA7060AP
U103	OB11157A	IC LA1235
U104	OB11245A	IC LA3400N
U203	OB11050A	IC NJM4558S
U204, 205	OB11514A	IC LC7816
U206, 207	OB11514A	IC LC7816
U208	OB11056A	IC LC4966
U301	OB11246A	IC μPC1237H
Q101	OB06129A	FET 2SK117 (Y)
Q102	OB06100A	TR 2SC945 (K,P,Q)
Q103	OB0127A	FET 2SK241 (GR)
Q104	OB06115A	TR 2SC1675
Q105	OB06115A	TR 2SC1675 (TA-3/3E)
Q106	OB06100A	TR 2SC945 (K,P,Q)
Q107	OB10097A	TR 2SA952
Q108	OB06100A	TR 2SC945 (K,P,Q)
Q109	OB10097A	TR 2SA952
Q110, 111	OB06100A	TR 2SC945 (K,P,Q)
Q112, 113	OB06100A	TR 2SC945 (K,P,Q)
Q114	OB06013A	TR 2SA733 (P,Q)
Q115	OB06100A	TR 2SC945 (K,P,Q) (TA-3 (Australia)/3E)
Q116	OB06100A	TR 2SC945 (K,P,Q)
Q117L,R	OB06299A	TR 2SC2878
Q118L,R	OB06013A	TR 2SA733 (P,Q)
Q119L,R	OB10151A	FET 2SK364 (TA-3 (Other))
Q120	OB10151A	FET 2SK364 (TA-3 (Other))
Q121, 122	OB06100A	TR 2SC945 (K,P,Q)
Q123	OB06013A	TR 2SA733 (P,Q)
Q204L,R	OB06299A	TR 2SC2878
Q205L,R	OB06299A	TR 2SC2878
Q206	OB10248A	TR 2SD313 (E)
Q207	OB10267A	TR 2SD1408
Q208	OB06013A	TR 2SA733 (P,Q)
Q209	OB06100A	TR 2SC945 (K,P,Q)
Q210	OB10266A	TR 2SB1017
Q211	OB10264A	TR 2SB507 (E)
Q212	OB06100A	TR 2SC945 (K,P,Q)
Q213	OB06013A	TR 2SA733 (P,Q)
Q301L,R	OB06142A	TR 2SC2240 (BL)
Q302L,R	OB06142A	TR 2SC2240 (BL)
Q303L,R	OB06142A	TR 2SC2240 (BL)
Q304L,R	OB10204A	TR 2SA1145
Q305L,R	OB10205A	TR 2SC2705
Q306L,R	OB06142A	TR 2SC2240 (BL)
Q307L,R	OB10205A	TR 2SC2705
Q308L,R	OB10204A	TR 2SA1145
Q314L,R	OB10050A	TR 2SA970 (BL)
Q315L,R	OB10205A	TR 2SC2705
Q316L,R	OB10050A	TR 2SA970 (BL)
Q317	OB06322A	TR 2SC2002
Q318	OB06372A	TR 2SA953
ZD235, 236	OB12627A	ZD 18V RD18EB2
ZD301L,R	OB06298A	ZD 8.2V RD8.2EB2
ZD302L,R	OB12614A	ZD 12V RD12EB2
ZD303	OB12614A	ZD 12V RD12EB2
D101	OB12606A	Varicap KV1236Z1
D102, 103	OB06398A	SiD 1SS176
D104	OB06398A	SiD 1SS176
D105, 106	OB06398A	SiD 1SS176 (TA-3 (Other))
D107, 108	OB06398A	SiD 1SS176 (TA-3 (Other))
D109, 110	OB06398A	SiD 1SS176
D111, 112	OB06398A	SiD 1SS176
D113, 114	OB12584A	SiD 1N4148
D115	OB06398A	SiD 1SS176
D117, 118	OB06398A	SiD 1SS176
D120	OB06398A	SiD 1SS176

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
D203,204	OB06398A	SID 1SS176	R121	OB09701A	RK 10K 1/6W J	R221L,R	OB09725A	RK 100K 1/6W J	R345L,R	OB24215A	RC 0.47 5W	C216L,R	OB05550A	CML 1000P 50V J	O-O	OB83518A	Ribbon Wire 7P 120			
D205,206	OB06398A	SID 1SS176	R122	OB09717A	RK 47K 1/6W J	R222L,R	OB09725A	RK 100K 1/6W J	R346	OB09391A	RK 91K 1/4W J	C216L,R	OB05550A	CML 1000P 50V J	Q-Q	OB83527A	Lead Wire 180			
D207,208	OB06398A	SID 1SS176	R123,124	OB09701A	RK 10K 1/6W J	R223L,R	OB09657A	RK 150K 1/6W J	R347	OB01889A	RK 100K 1/4W J	C217L,R	OB05550A	CML 1000P 50V J	S-S	OB83525A	Lead Wire 160			
D209	OB06398A	SID 1SS176	R125,126	OB09701A	RK 10K 1/6W J	R224L,R	OB09645A	RK 47 1/6W J	R348L,R	OB24215A	RC 0.47 5W	C217L,R	OB05550A	CML 1000P 50V J		OB83535A	(TA-3/3A/3E)			
D210,211	OB12584A	SID 1N4148	R127	OB09701A	RK 10K 1/6W J	R225L,R	OB09719A	RK 56K 1/6W J	R417	OB05615A	RK 22K 1/4W J	C218L,R	OB05550A	CML 1000P 50V J		OB83535A	(TA-3E)			
D212	OB12584A	SID 1N4148	R128	OB09725A	RK 100K 1/6W J	R226L,R	OB09645A	RK 47 1/6W J	R1101,1102	OB09695A	RK 5.6K 1/6W J	C218L,R	OB05550A	CML 1000P 50V J		OB83535A	(TA-30)			
D213,214	OB06398A	SID 1SS176	R129	OB09727A	RK 120K 1/6W J	R227L,R	OB09719A	RK 56K 1/6W J	R1103,1104	OB09701A	RK 10K 1/6W J	C220L,R	OB05550A	CML 1000P 50V J	U-U	OB83538A	Lead Wire 80			
D215,216	OB06398A	SID 1SS176	R130	OB09721A	RK 68K 1/6W J	R228L,R	OB09645A	RK 47 1/6W J	R1105,1106	OB09701A	RK 10K 1/6W J	C220L,R	OB05550A	CML 1000P 50V J		OB83538A	(TA-3E)			
D217,218	OB06398A	SID 1SS176	R131	OB09745A	RK 680K 1/6W J	R229L,R	OB09719A	RK 56K 1/6W J	R1107,1108	OB09725A	RK 100K 1/6W J	C224,225	OB09372A	CE 2.2μ 50V		OB80208A	Glass Tube 10mm (28)			
D219,220	OB06398A	SID 1SS176	R132	OB09661A	RK 220 1/6W J	R230L,R	OB09661A	RK 220 1/6W J	VC101	OB42010A	C Trimmer 10P	C226	OB09292A	CC 0.1μ 50V Z		OB80209A	Glass Tube 16mm (4)			
D221	OB06398A	SID 1SS176	R134	OB09667A	RK 390 1/6W J	R231L,R	OB09725A	RK 100K 1/6W J	C101	OB09288A	CC 1000P 50V K	C227	OB01527A	CE 22μ 25V		OB80210A	Glass Tube 10mm (2)			
D222,223	OB12584A	SID 1N4148	R135	OB09698A	RM 7.5K 1/6W F	R232L,R	OB09717A	RK 47K 1/6W J	C102,103	OB09291A	CC 0.022μ 50V Z	C228L,R	OB05550A	CML 1000P 50V J		OB81977A	ANT Terminal F (1)			
D224,225	OB12584A	SID 1N4148	R136	OB09686A	RM 2.4K 1/6W F	R233L,R	OB09645A	RK 47 1/6W J	C104	OB09288A	CC 1000P 50V K	C229	OB09292A	CC 0.1μ 50V Z		OB81981A	4P Pin Jack (5)			
D226,227	OB06398A	SID 1SS176	R137	OB09665A	RK 330 1/6W J	R234L,R	OB09719A	RK 56K 1/6W J	C105,106	OB09291A	CC 0.022μ 50V Z	C229	OB09292A	CC 0.1μ 50V Z		OB84037A	4P Pin Jack (1)			
D228,229	OB06398A	SID 1SS176		(TA-3A/30)		R235L,R	OB09661A	RK 220 1/6W J	C107	OB1403A	CE 47μ 16V									
D230	OB12584A	SID 1N4148	R138	OB09645A	RK 47 1/6W J	R236L,R	OB09725A	RK 100K 1/6W J	C108	OB09291A	CC 0.022μ 50V Z	C230	OB09291A	CC 0.022μ 50V Z						
D231,282	OB12584A	SID 1N4148	R139	OB09667A	RK 390 1/6W J	R237L,R	OB09717A	RK 47K 1/6W J	C109	OB41908A	CC 82P 50V J	C231,232	OB09292A	CC 0.1μ 50V Z						
D233	OB12584A	SID 1N4148	R140,141	OB09667A	RK 390 1/6W J	R238L,R	OB09645A	RK 47 1/6W J	C110	OB09291A	CC 0.022μ 50V Z	C235	OB09291A	CC 0.022μ 50V Z						
D237	OB12584A	SID 1N4148	R142	OB09665A	RK 330 1/6W J	R239L,R	OB09719A	RK 56K 1/6W J	C111	OB09288A	CC 1000P 50V K	C236	OB1780A	CML 0.1μ 50V J						
D238	OB06398A	SID 1SS176	R143	OB09689A	RK 3.3K 1/6W J	R240L,R	OB09733A	RK 220K 1/6W J	C112	OB05582A	CML 0.022μ 50V J	C236	OB1780A	(TA-3/3A/30)						
D240	OB12584A	SID 1N4148		(TA-3 (Other))		R242L,R	OB09679A	RK 1.2K 1/6W J	C113	OB01802A	CML 2200P 50V J	C301L,R	OB09148A	CE 10μ 25V (LN)						
D241,242	OB06398A	SID 1SS176	R144	OB09665A	RK 330 1/6W J	R249	OB09733A	RK 220K 1/6W J	C114	OB05685A	CML 0.082μ 50V J	C302L,R	OB41213A	CPP 330P 100V J						
D243,244	OB06398A	SID 1SS176	R145,146	OB09693A	RK 4.7K 1/6W J	R250,251	OB09705A	RK 15K 1/6W J	C115	OB09290A	CC 0.01μ 50V Z	C303L,R	OB05652A	CML 4700P 50V J						
D245,246	OB06398A	SID 1SS176		(TA-3 (Other))		R252	OB09725A	RK 100K 1/6W J	C116	OB40025A	CE 0.47μ 50V	C304L,R	OB09286A	CC 470P 50V J						
D247	OB06398A	SID 1SS176		(TA-3 (Other))		R253	OB09733A	RK 220K 1/6W J	C117	OB09291A	CC 0.022μ 50V Z	C311L,R	OB10295A	TR 2SA1492 (O,Y)						
D304	OB12584A	SID 1N4148	R147,148	OB09665A	RK 330 1/6W J	R254	OB09717A	RK 47K 1/6W J	C118	OB01403A	CE 47μ 16V	C305L,R	OB05681A	CML 0.1μ 50V J						
D305	OB12586A	SID 1N4002		(TA-3/3E)		R255,256	OB09705A	RK 15K 1/6W J	C119	OB09291A	CC 0.022μ 50V Z	C306L,R	OB40434A	CE 220μ 25V (LN)						
D307	OB06398A	SID 1SS176	R149	OB09698A	RK 7.5K 1/6W J	R257	OB09717A	RK 47K 1/6W J	C120	OB41896A	CSP 390P 50V J	C307L,R	OB09279A	CC 22P 50V K						
D418	OB12626A	SID KBU6D	R150	OB09689A	RK 3.3K 1/6W J	R258,259	OB09701A	RK 10K 1/6W J	C121	OB41489A	CC 2P 50V J	C308L,R	OB09279A	CC 22P 50V K						
D419	OB12586A	SID 1N4002		(TA-3/3E)		R260	OB09713A	RK 33K 1/6W J	C123,124	OB40029A	CE 4.7μ 50V	C310L,R	OB1780A	CML 0.1μ 50V J						
CF101	OB41897A	Ceramic Filter				R261	OB09727A	RK 120K 1/6W J	C125	OB09372A	CE 2.2μ 50V	C312L,R	OB10294A	TR 2SA2167						
CF102	OB41898A	Ceramic Filter				R262	OB24204A	RF 220 2W	C126	OB09291A	CC 0.022μ 50V Z	C313	OB10295A	TR 2SA2597						
CF103,104	OB41918A	Ceramic Filter				R263	OB05622A	RK 2.2K 1/4W J	C127	OB09387A	CC 0.47μ 50V Z	C314	OB1400A	CE 100μ 16V						
CF105	OB41918A	SFE10.7MLA	R153	OB09677A	RK 1K 1/6W J	R265	OB05622A	RK 2.2K 1/4W J	C128,129	OB09291A	CC 0.022μ 50V Z	C315	OB40250A	CE 100μ 16V (BP)						
CF106,107	OB41928A	SFE10.7MLA	R154,155	OB09717A	RK 4.7K 1/6W J	R266,267	OB05622A	RK 2.2K 1/4W J	C129	OB40079A	CE 220μ 16V	C316	OB01674A	CE 10μ 25V						
CF108	OB41927A	Ceramic Resonator		R159	OB09705A	RK 1K 1/6W J	R													

7. SCHEMATIC DIAGRAMS

7.1. IC Block Diagrams

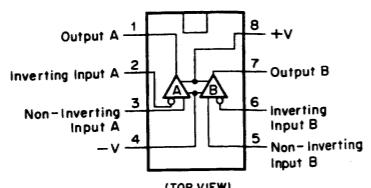


Fig. 7.1.1 Operational Amp. IC NJM4558DD, 072DE

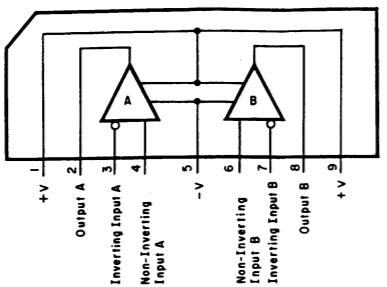


Fig. 7.1.2 Operational Amp. IC NJM4558S, μPC4570HA

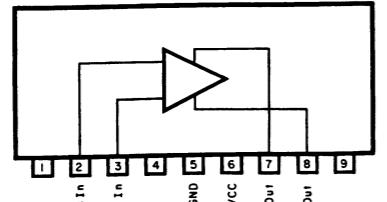


Fig. 7.1.3 Volume Motor Driver IC BA6208

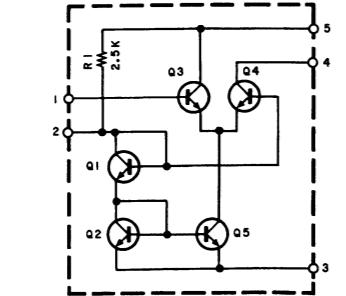


Fig. 7.1.4 FM IF Amp. IC TA7060AP

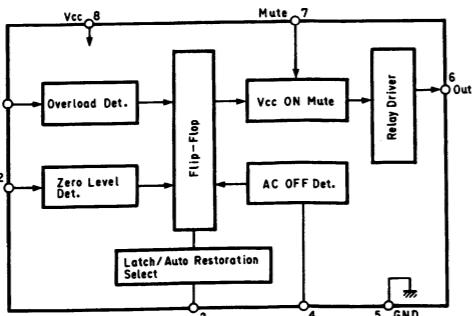


Fig. 7.1.5 Power Amp. Protector IC μPC1237H

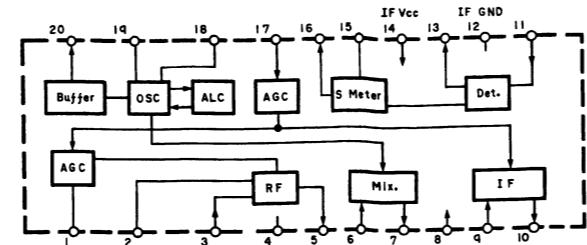


Fig. 7.1.6 AM Tuner IC LA1247

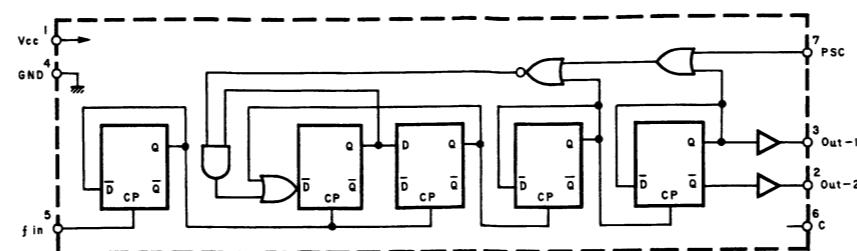


Fig. 7.1.7 ECL Prescaler (FM) IC TD6104P

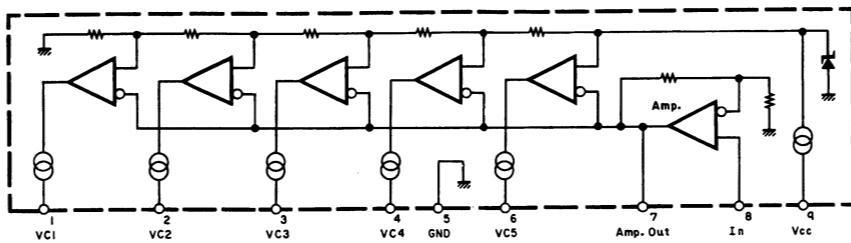


Fig. 7.1.8 Signal Meter Driver IC LB1413N

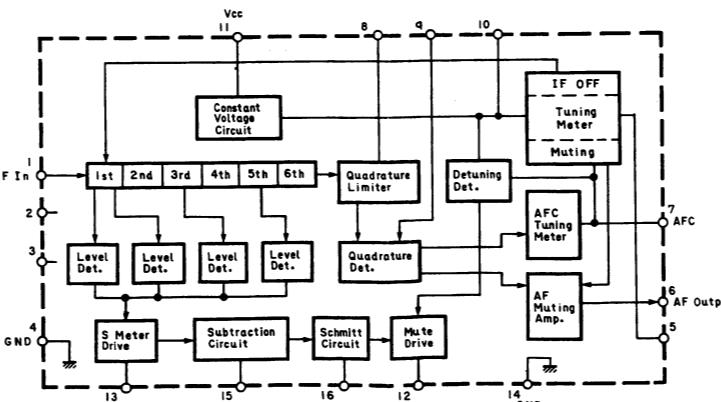


Fig. 7.1.9 FM IF Amp. & Detector IC LA1235

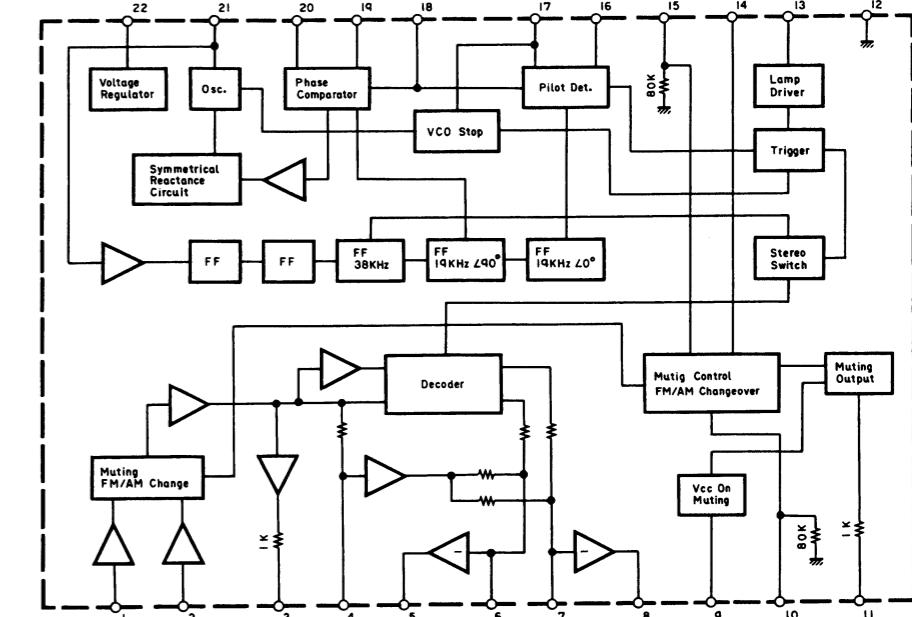


Fig. 7.1.10 PLL FM MPX Demodulator IC LA3400N

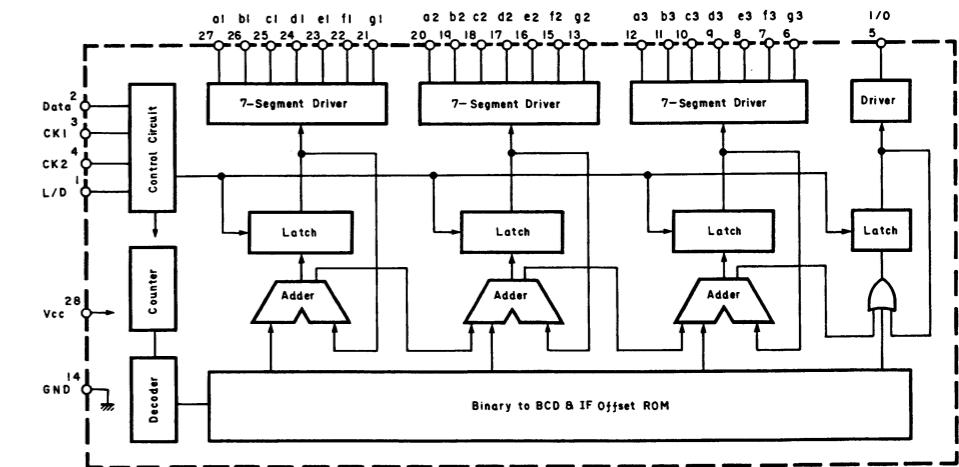
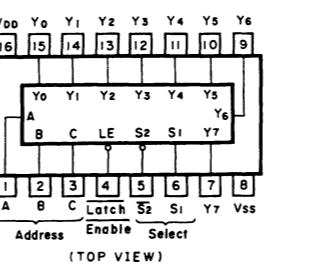
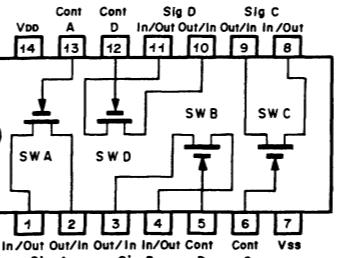
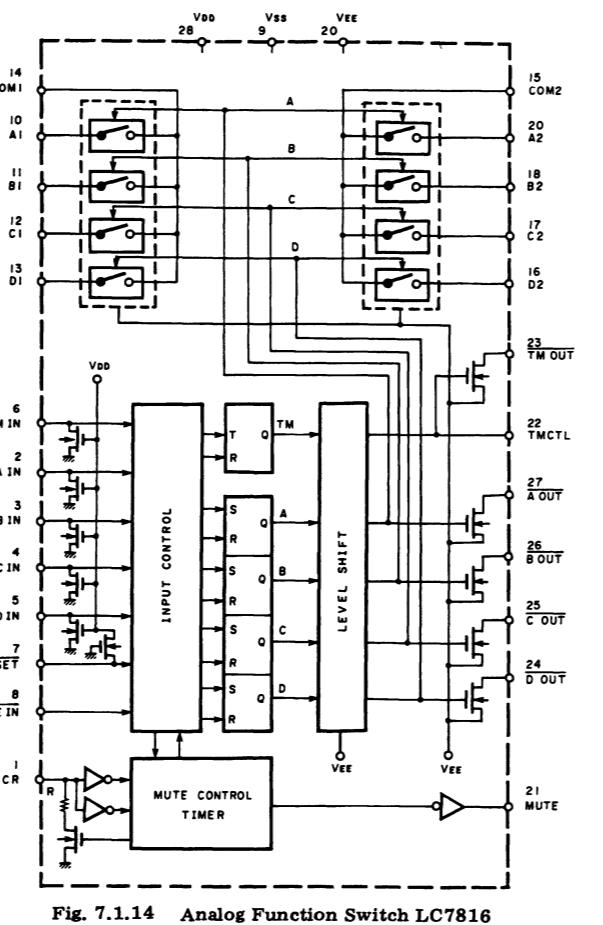
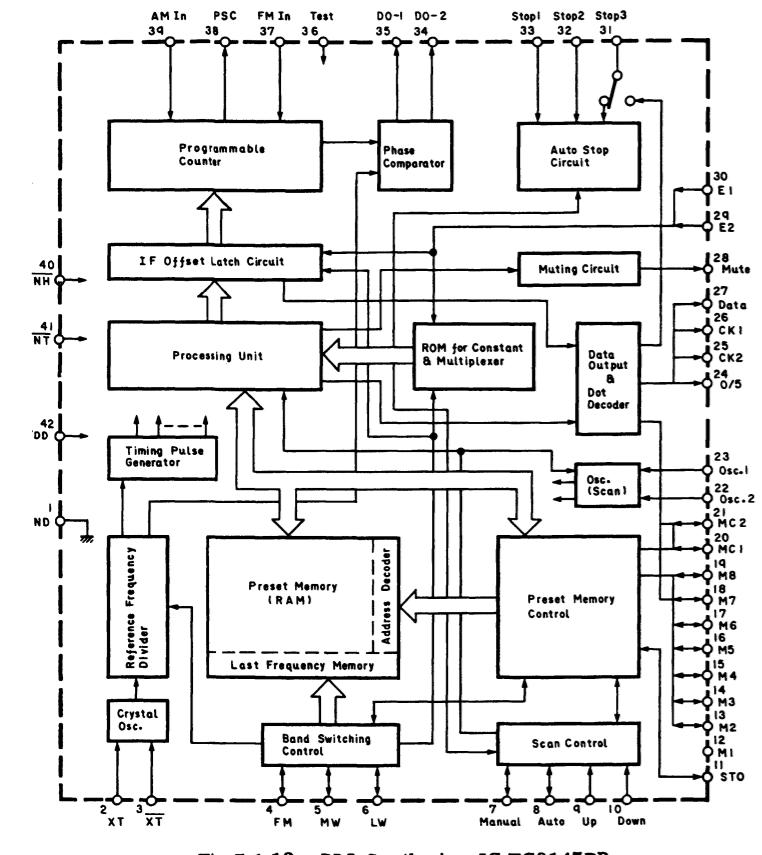
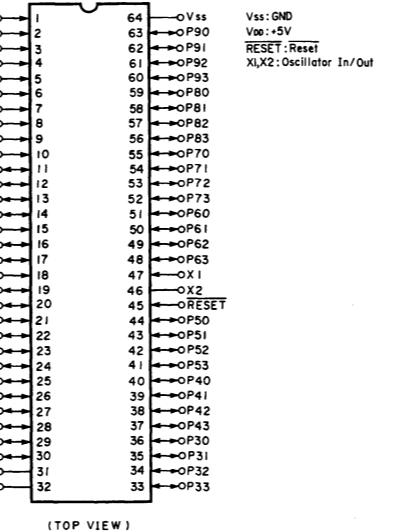
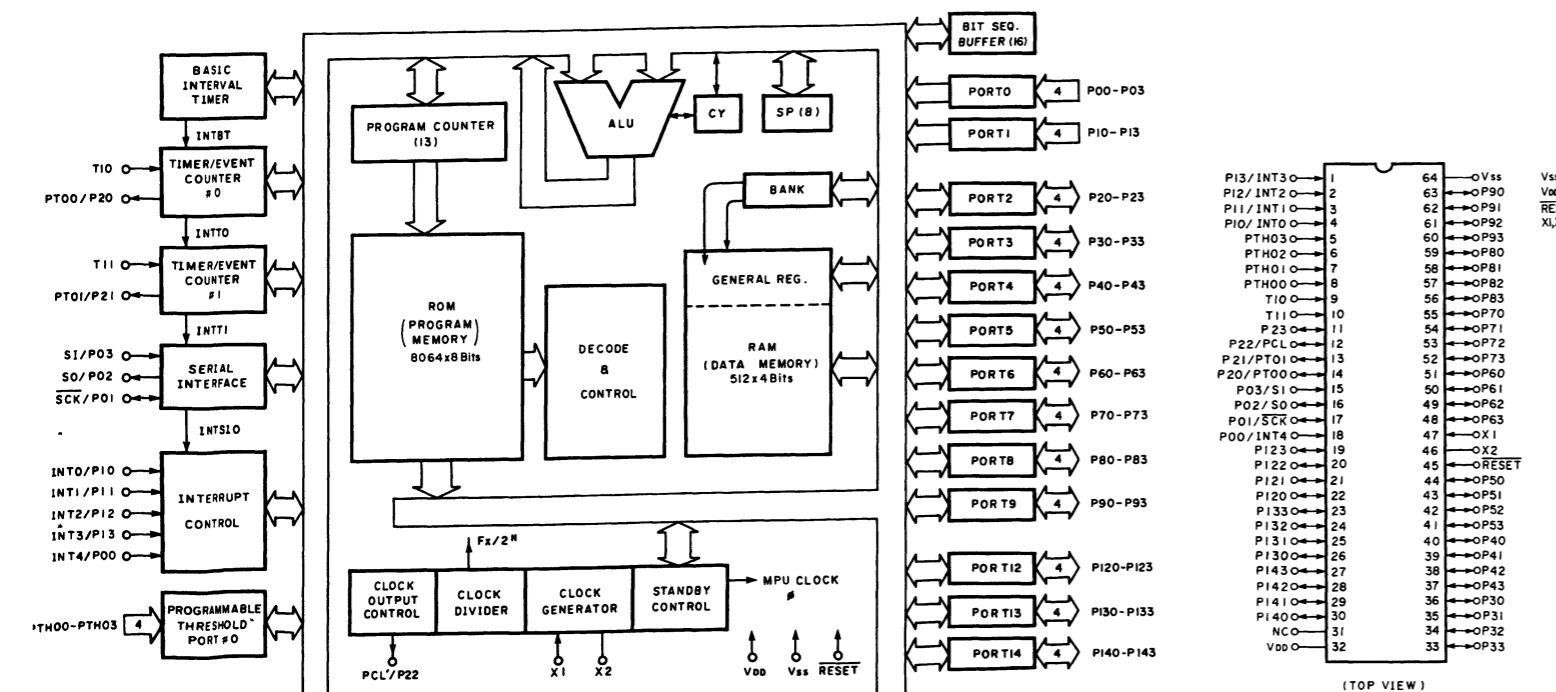
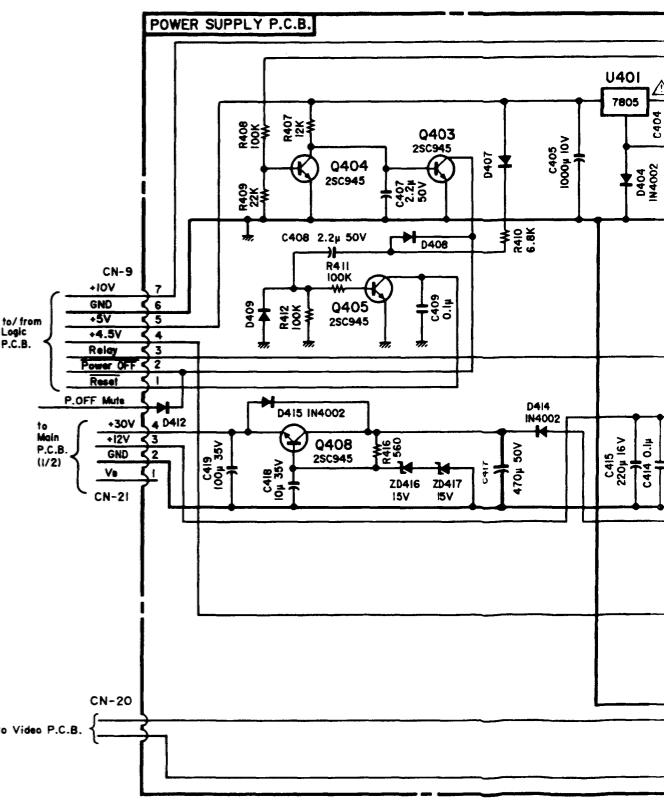
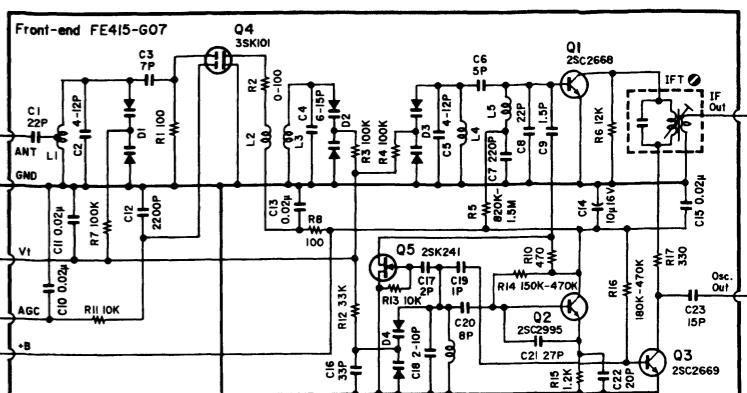


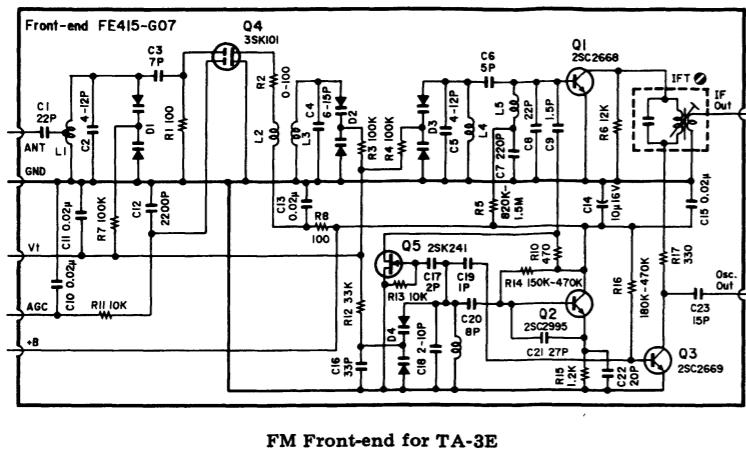
Fig. 7.1.11 Display Driver IC TD6301AP



7.2. Schematic Diagrams



7.2. Schematic Diagrams



7.2.2. Tuner Section

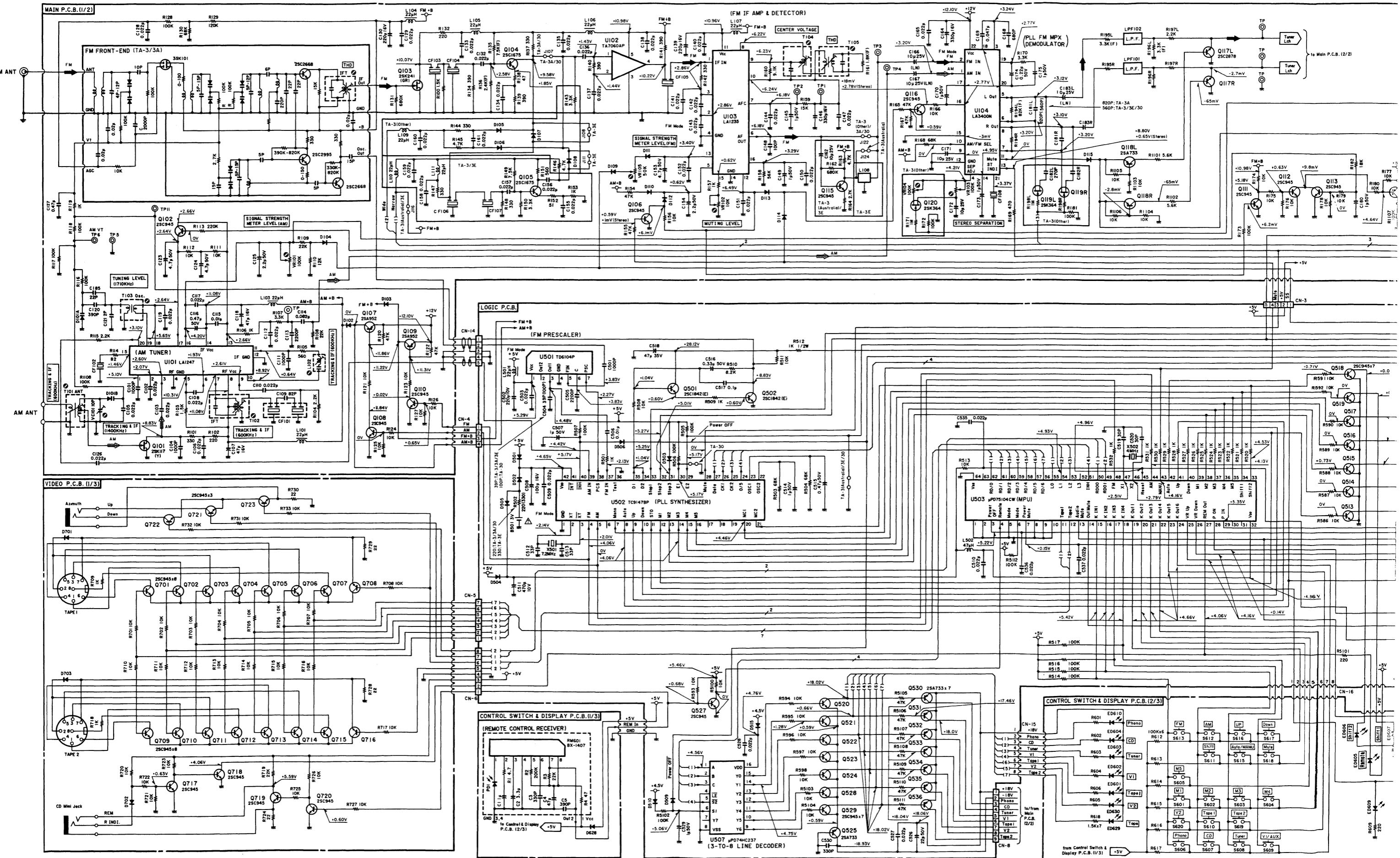


Fig. 7.2.2

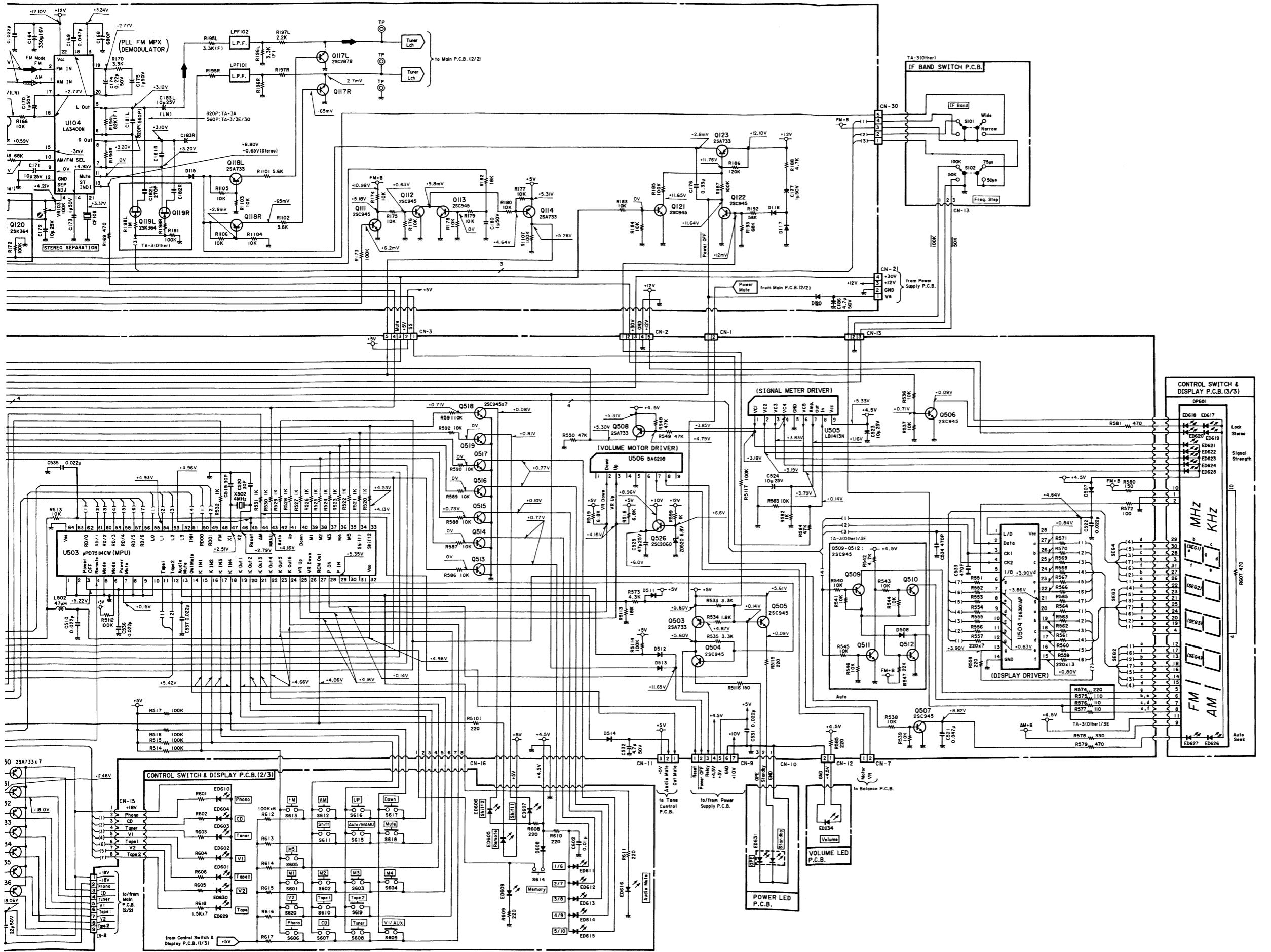
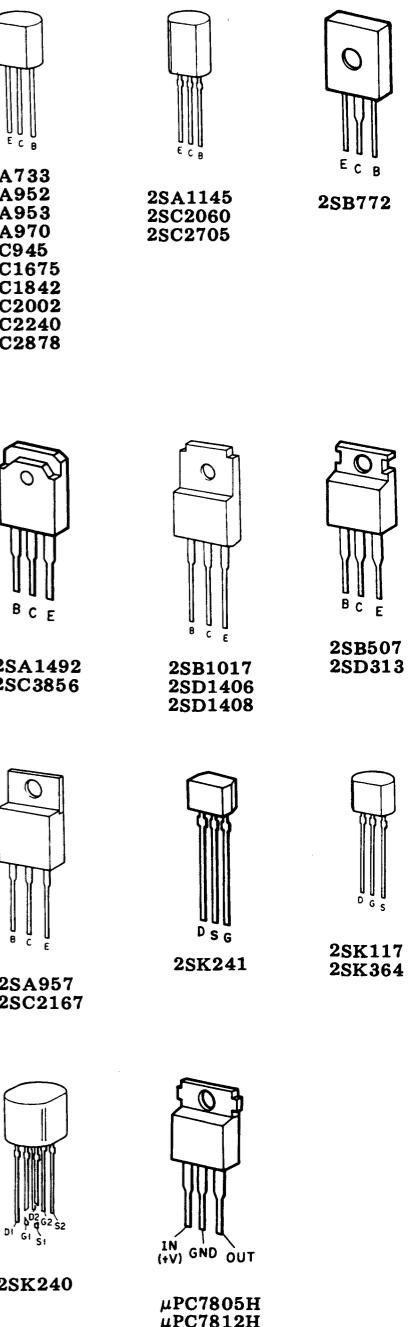


Fig. 7.2.2

Notes:

NOTES:

1. Diode is 1SS53, 1S1555, 1SS176, or 1N4148 unless otherwise specified.
2. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
3. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.
4. Parts marked with ** indicate those for TA-3E.
5. Voltage measuring conditions
 - With no input signal applied to the input terminals.
 - With no load connected to the speaker terminals.



7.2.3. Amplifier Section

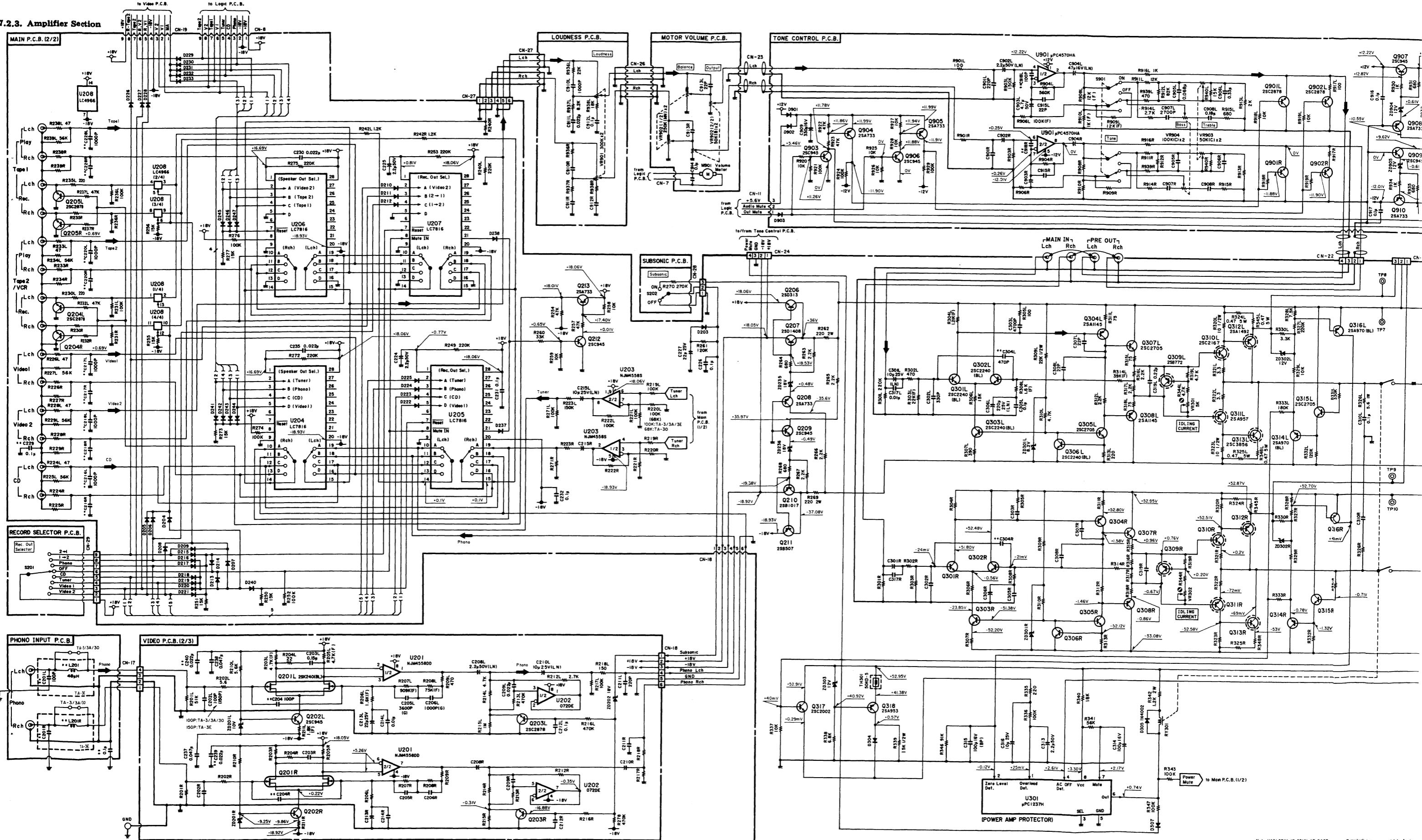


Fig. 7.2.3

WARNING: Parts marked with the symbol  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

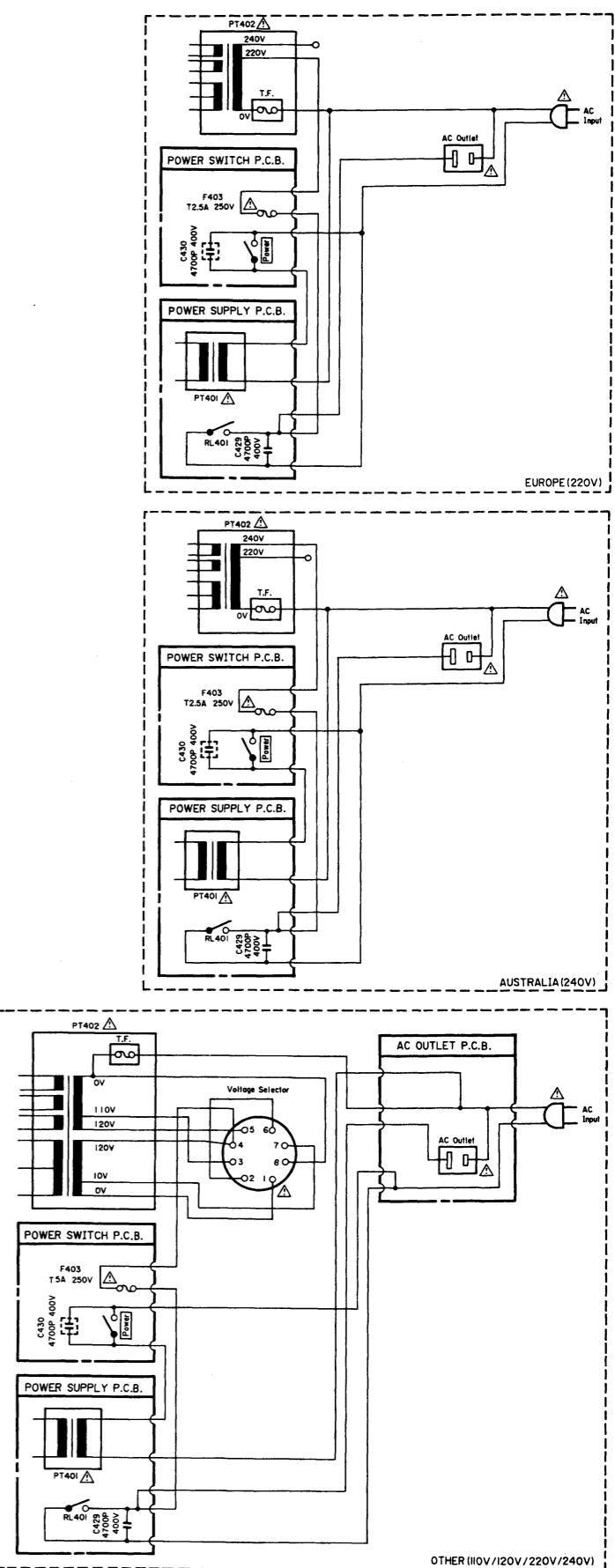
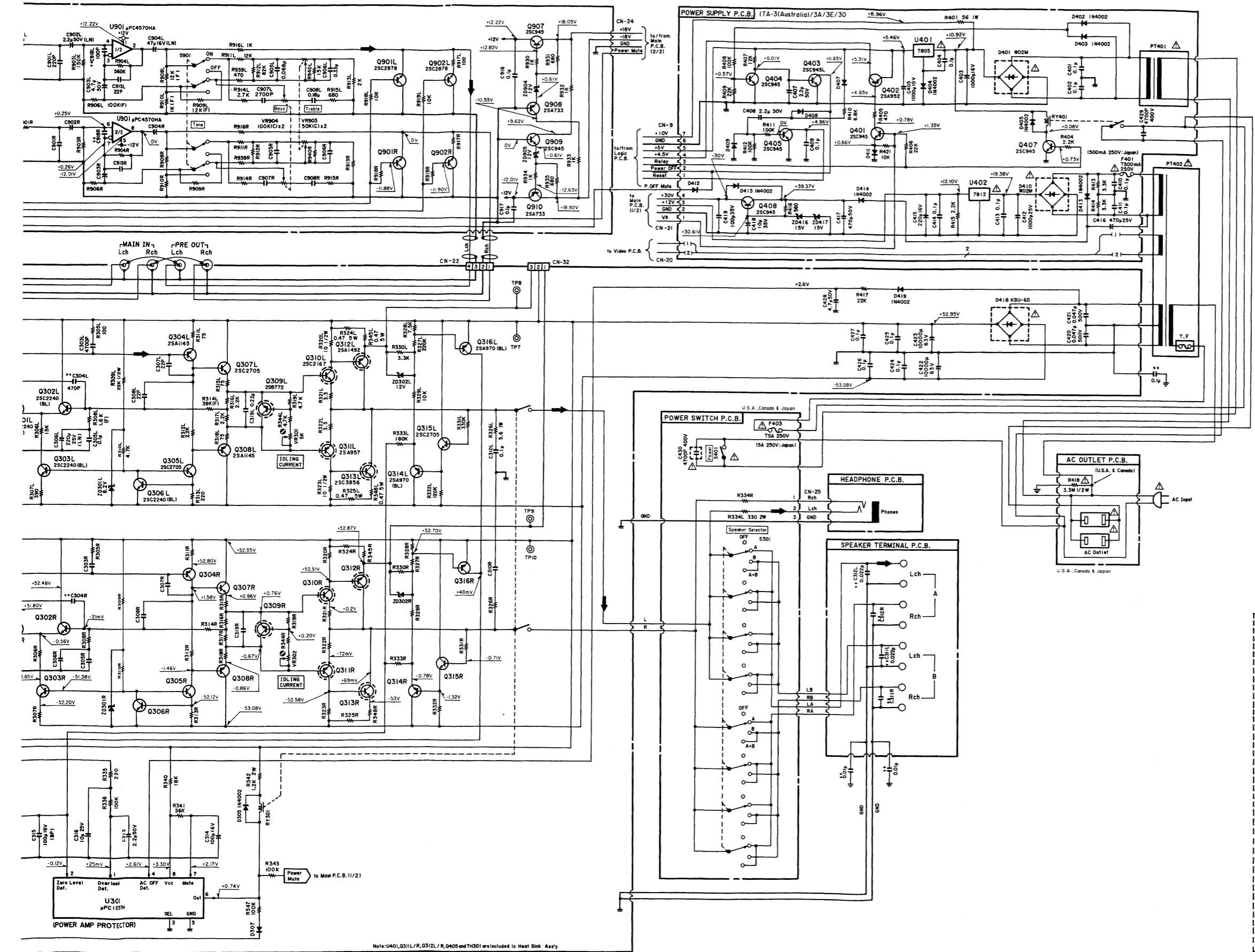


Fig. 7.2.3

8. WIRING DIAGRAM

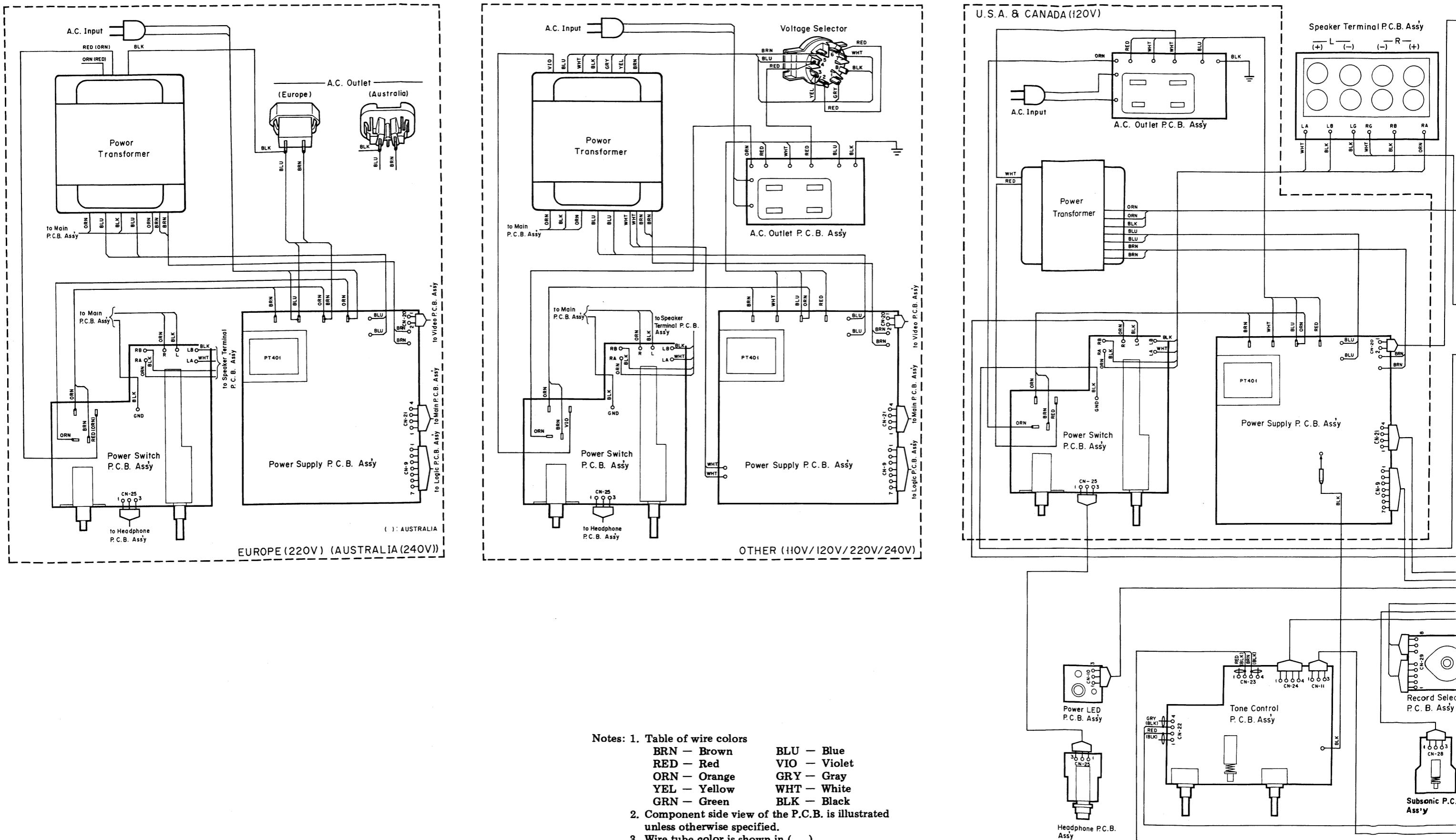


Fig. 8

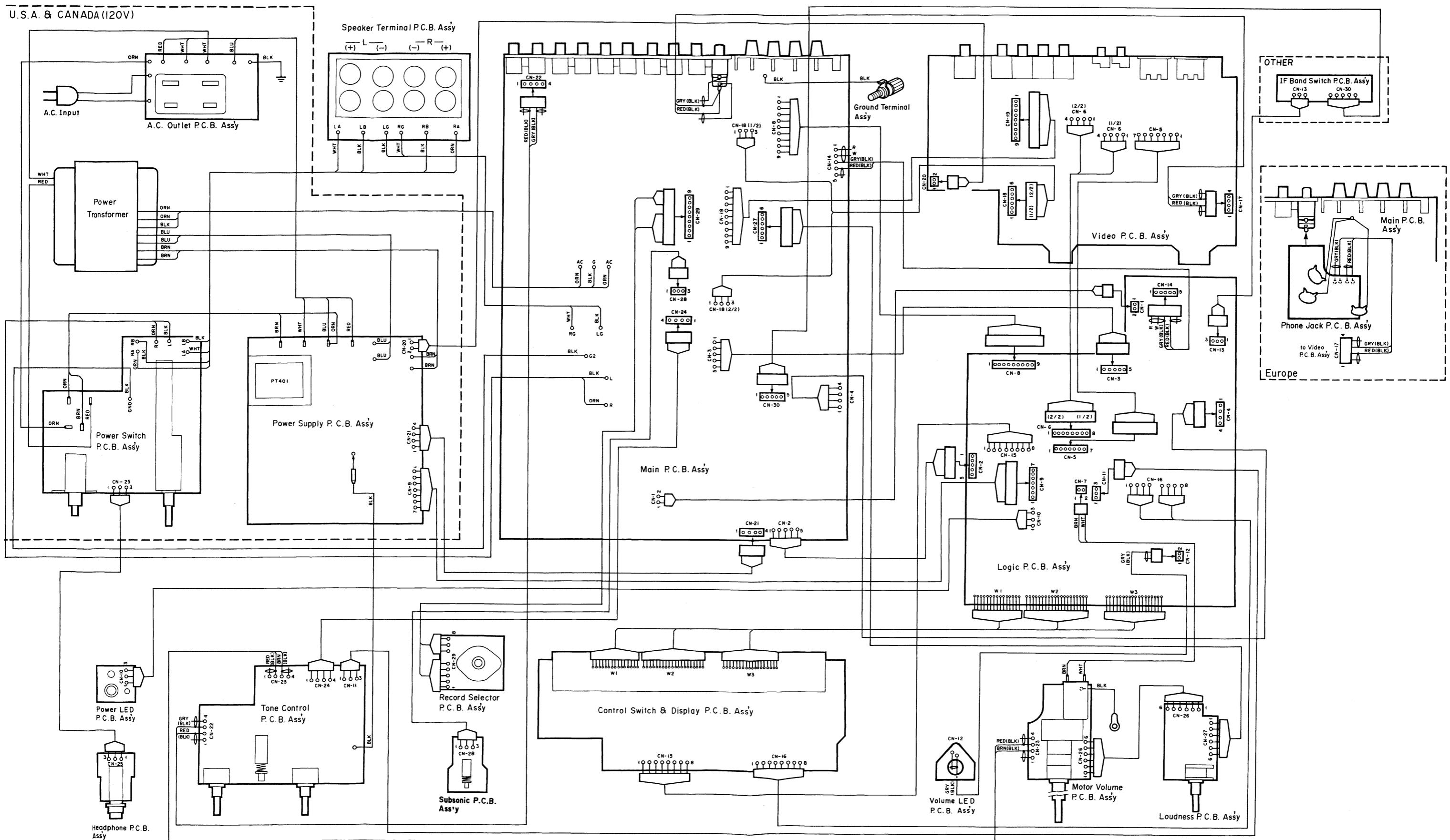


Fig. 8

9. BLOCK DIAGRAMS

9.1. Tuner Section

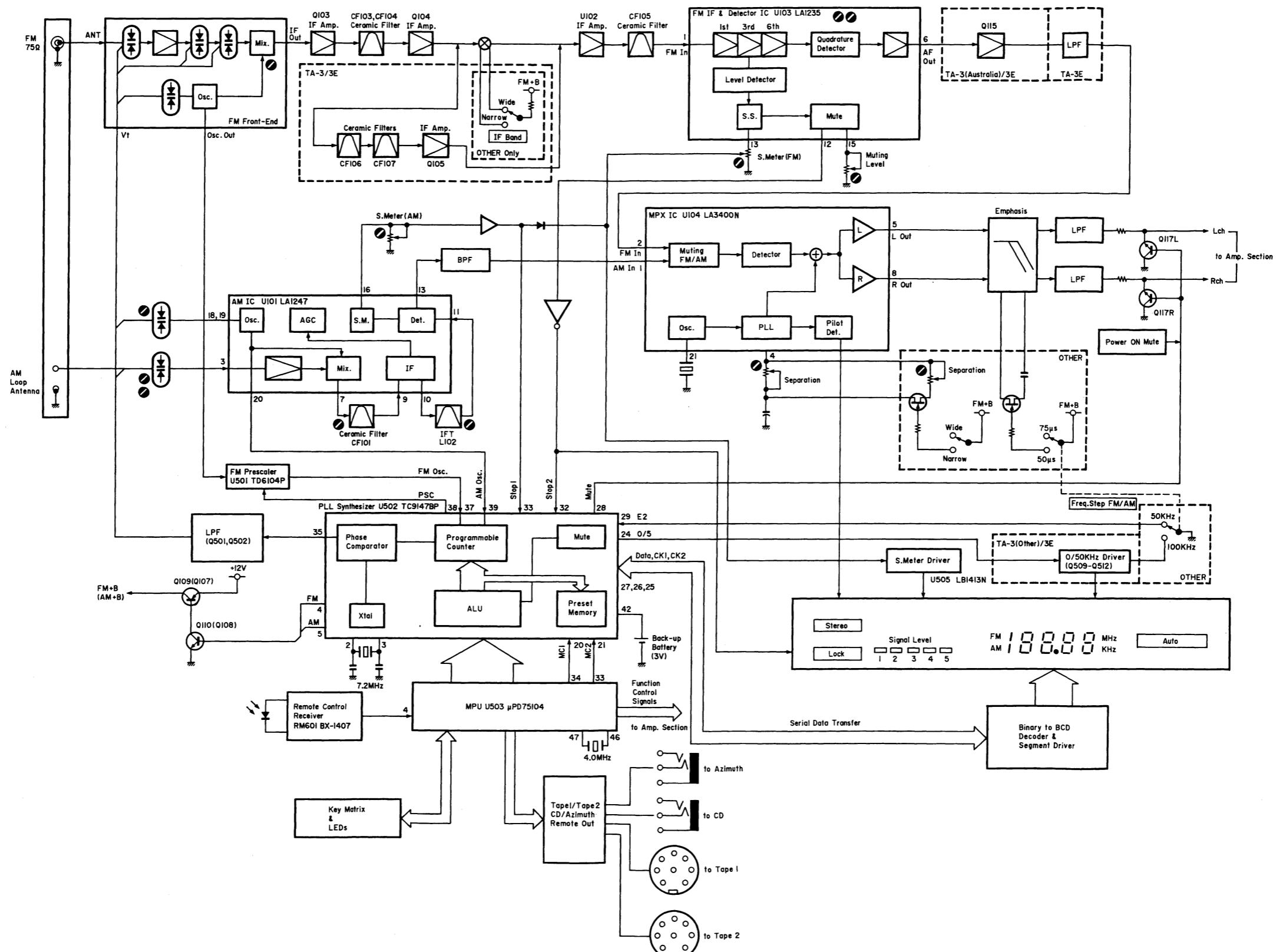


Fig. 9.1

9.2. Amplifier Section

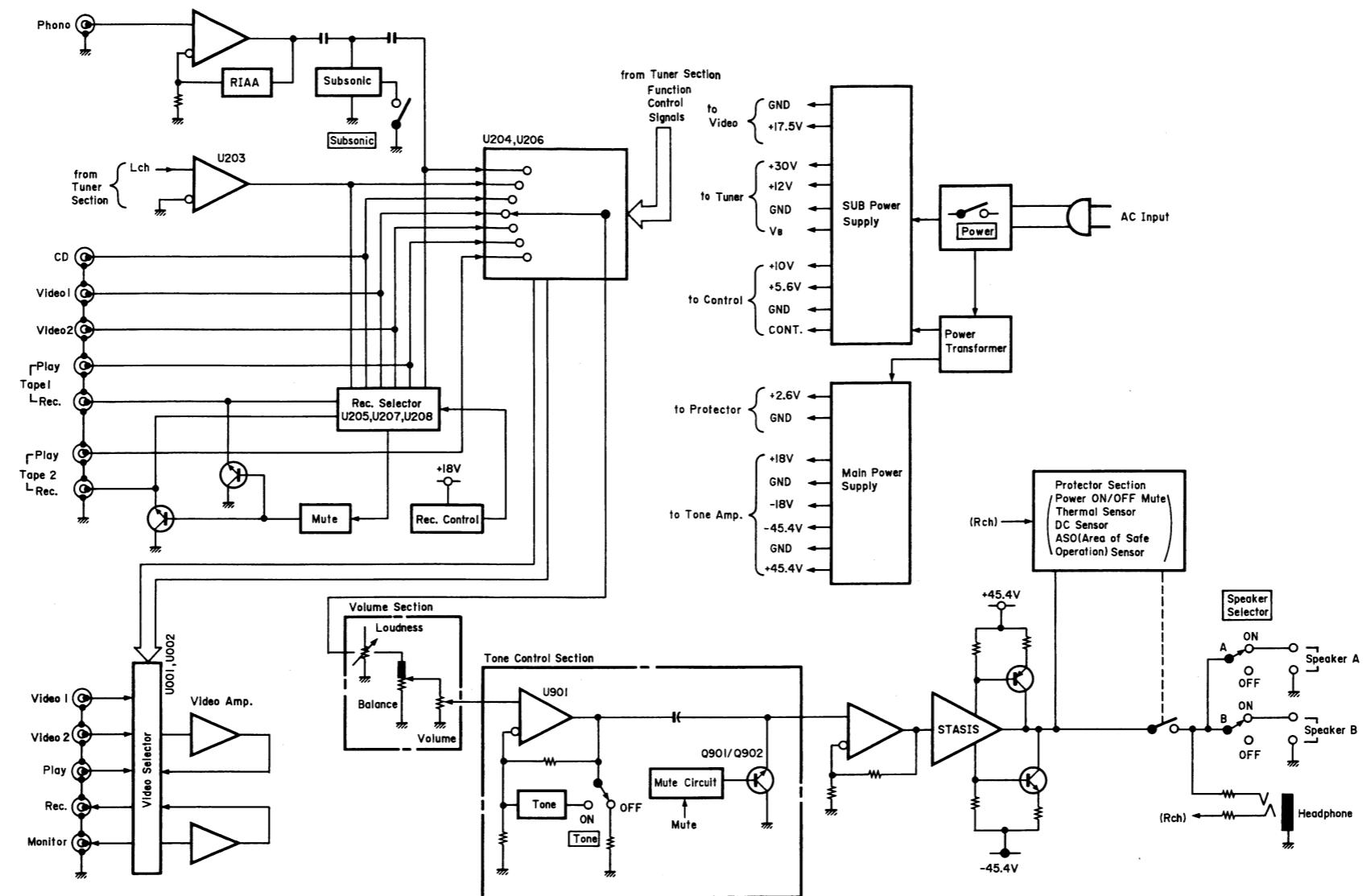


Fig. 9.2

10. SPECIFICATIONS

Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/VIDEO/TAPE) to the speaker output.

Continuous Average Output . . .	75 watts per channel into 8 ohms, both channels driven, 20–20,000
Power	Hz, at no greater than 0.1% THD
Dynamic Output Power	100 watts per channel into 8 ohms
	125 watts per channel into 4 ohms
Power Bandwidth	5–50,000 Hz
	5–30,000 Hz (TA-3E)
Frequency Response	20–20,000 Hz; +0, −0.5 dB
	20–20,000 Hz; +0, −1 dB (TA-3E)
	5–75,000 Hz; +0, −3 dB
	5–45,000 Hz; +0, −3 dB (TA-3E)
Signal to Noise Ratio	Better than 100 dB re Rated Power
(A-WTD, Input Shorted)	Better than 83 dB (IHF-A-202)
Total Harmonic Distortion	Less than 0.1%
(8 ohms, Rated Power, 20 Hz–20 kHz)	
Headphone Rated Output	175 mW
(40 ohms)	
Output Current Capability . . .	18 A peak per channel

Preamplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for Sensitivity, S/N, Tone Control and Loudness characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec. Out.

Sensitivity (for Rated Output)	
Phono MM	2.5 mV
CD/Tape/Video	150 mV
Main In	1.0 V
Sensitivity (for 1-watt output, IHF-A-202)	
Phono MM	0.29 mV
CD/Tape/Video	17 mV
Main In	115 mV
Input Impedance	
Phono MM	47 kohms
CD/Tape/Video	20 kohms
Main In	20 kohms
Maximum Input Level (1 kHz)	
Phono MM	180 mV
Pre Output Level/Impedance . .	1.0 V/1 kohms
Record Output Level/	150 mV/1.5 kohms
Impedance	
Total Harmonic Distortion (1 kHz, to Rec. Out, at 1 V)	
Phono MM	Less than 0.008%
RIAA Deviation	
Phono MM	30–20,000 Hz ±0.5 dB
Signal to Noise Ratio (to speaker output, IHF-A-202)	
Phono MM	Better than 78 dB
	Better than 76 dB (TA-3E)
Tone Controls	
Bass	20 Hz, ±10 dB
Treble	20 kHz, ±10 dB
Variable Loudness	20 Hz, +20 dB; 20 kHz, +6 dB
(re maximum attenuation: −40 dB at 1 kHz)	
Subsonic Filter (Phono only) . .	Cutoff Frequency 20 Hz, −12 dB/octave

Tuner Section

(1) TA-3 (Other) (See Note) & TA-3A

Note: Selector switch settings for Other Model

Frequency Step FM/AM: 100 kHz/10 kHz, De-emphasis: 75 μ s, IF Band: Wide

[FM Section]

Note: All RF levels in microvolts given re 300-ohm antenna input.

Modulation: Mono 100%, Stereo Pilot 9%, Stereo Audio Signal 91%.

All measurements made at Rec. Out Jack.

Frequency Range 87.5–108.0 MHz in 100 kHz steps

IHF Usable Sensitivity 11.0 dBf/1.9 μ V

(Mono)

50-dB Quieting Sensitivity

Mono 14.7 dBf/3.0 μ V

Stereo 37.5 dBf/41.1 μ V

Signal to Noise Ratio at 65 dBf

Mono Better than 79 dB

Stereo Better than 74 dB

Muting Threshold 30 dBf/17.3 μ V

Frequency Response 20–15,000 Hz \pm 1 dB

Total Harmonic Distortion (1 kHz)

Mono Less than 0.07%

Stereo Less than 0.07%

Capture Ratio 2.0 dB

Alternate Channel Selectivity . . . 55 dB (\pm 400 kHz)

Stereo Separation at 1 kHz . . . Better than 50 dB

Spurious Response Rejection . . . Better than 90 dB

Image Rejection Better than 75 dB

IF Rejection Better than 80 dB

AM Suppression Better than 60 dB

[AM Section]

Note: Modulation — 400 Hz, 30%

Frequency Range 520–1,710 kHz in 10 kHz steps

Sensitivity 53 dB μ /m

Signal to Noise Ratio at 90 Better than 52 dB

dB μ /m

Total Harmonic Distortion Less than 0.5%

at 90 dB μ /m

Selectivity Better than 20 dB (\pm 10 kHz)

(2) TA-3 (Other) (See Note) & TA-3E

Note: Selector switch settings for Other Model

Frequency Step FM/AM: 50 kHz/9 kHz, De-emphasis: 50 μ s, IF Band: Narrow

[FM Section]

Note: All RF levels in microvolts given re 300-ohm antenna input.

Modulation: Mono 60%, Stereo Pilot 9%, Stereo Audio Signal 51%.

All measurements made at Rec. Out Jack.

Frequency Range 87.50—108.00 MHz in 50 kHz steps

IHF Usable Sensitivity (Mono) . 11.0 dBf/1.9 μ V

50-dB Quieting Sensitivity

 Mono 23.0 dBf/7.7 μ V

 Stereo 44.0 dBf/86.8 μ V

Signal to Noise Ratio at 65 dBf

 Mono Better than 72 dB (TA-3E)/75 dB (TA-3 (Other))

 Stereo Better than 67 dB

Muting Threshold 30 dBf/17.3 μ V

Frequency Response 20—15,000 Hz \pm 1 dB

Total Harmonic Distortion (1 kHz)

 Mono Less than 0.20%

 Stereo Less than 0.25%

Capture Ratio 2.0 dB

Alternate Channel Selectivity . . 70 dB (\pm 300 kHz)

Stereo Separation at 1 kHz . . . Better than 40 dB

Spurious Response Rejection . . Better than 90 dB

Image Rejection Better than 75 dB

IF Rejection Better than 80 dB

AM Suppression Better than 60 dB

[AM Section]

Note: Modulation — 400 Hz, 30%

Frequency Range 522—1,611 kHz in 9 kHz steps

Sensitivity 53 dB μ /m

Signal to Noise Ratio at 90 . . . Better than 52 dB

 dB μ /m

Total Harmonic Distortion . . . Less than 0.5%

 at 90 dB μ /m

Selectivity Better than 20 dB (\pm 9 kHz)

General

Power Source 120, 220, 240 or 110/120/220/240 V AC, 50/60 Hz
(According to country of sale)

Power Consumption 350 watts max.

Convenience Outlets Switched: 2 (For TA-3 (Other) & TA-3A), Switched: 1 (TA-3E)

Dimensions 430 (W) x 100 (H) x 370 (D) mm

 16-15/16 (W) x 3-15/16 (H) x 14-9/16 (D) inches

Approximate Weight 11.0 kg, 24 lbs. 4 oz.

Remote Control Unit (RM-3TA)

Principle Infrared Pulse System

Power Supply 3 V DC (1.5 V x 2)

Dimensions 64 (W) x 18 (H) x 176 (D) mm

 2-1/2 (W) x 11/16 (H) x 6-15/16 (D) inches

Approximate Weight 140 g, 5 oz. (including batteries)

- Specifications and design are subject to change for further improvement without notice.
- STASIS manufactured under license from Threshold Corporation.
- STASIS is a trademark of Threshold Corporation.

Service Information

Model TA-3/3A/3E/30 (High Definition Tuner Amplifier)
Serial No. from D10951896 -

Subject Change of Transistors



Nakamichi

No. OOD-M-0337 (1/1)
Date 8 February 1990

1. General

1.1. Purpose

To obtain greater power margin (collector dissipation), Q208 and Q209 on the Main P.C.B. Ass'y have been changed.

If you receive a complaint about transistor damage from your customer, we recommend you to change the damaged transistor to a new one having greater power margin.

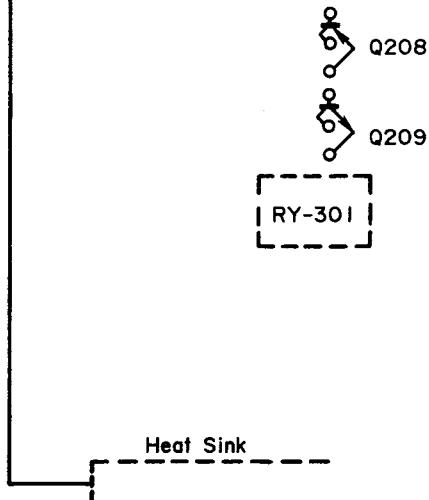
1.2. Modification

Refer to Fig. 1.

Q208 and Q209 on the Main P.C.B. Ass'y have been changed as follows:

<u>Ref. No.</u>	<u>Current Part No.</u>	<u>Current Description</u>	<u>New Part No.</u>	<u>New Description</u>	<u>Q'ty</u>
Q208	OB06013A	TR 2SA733	OB06372A	TR 2SA953	1
Q209	OB06100A	TR 2SC945	OB06322A	TR 2SC2002	1

(Dip Side)



Note: See Fig. 6.18 (page 21) in the Service Manual.

Fig. 1 (Main P.C.B. Ass'y)

